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American Society for Testing Materials

Professor Marburg's reply, on another page, to the criticisms of the American Society for Testing Materials, which appeared in our issue of July 10, is deserving of most careful consideration. As one who has been connected with the society from its very inception, and as a most important factor in its development and up-building, the facts which he presents for consideration cannot but carry conviction. A canvas of a considerable number of railway men who are actively identified with the committee work of the society indicates that it is doing a work which is deserving of the support and appreciation of all those who are interested in developing and standardizing the specifications of the various materials which are used by the railways. No opportunity is being overlooked by those in charge of the society to so adjust and revise its methods of procedure as to insure the very best results in the effort to develop and perfect standard specifications. Reference was made in the above mentioned editorial, and also in Professor Marburg's letter, to the Havre de Grace bridge paint tests. There can be no question as to the value of the data thus far obtained from these tests in assisting the paint chemist in his task of selecting the best paint for various purposes. These results would, however, be greatly enhanced by additional information concerning the ingredients used in mixing the paints and information as to the manner of their mixing. The paints which were applied for test were chemically analyzed and these analyses have been published, but those familiar with paint chemistry realize that such analyses cannot show just what ingredients were used in mixing the paints, or indicate how the mixture was made.

The Economists and Business Problems

We publish on another page a letter from a man who specialized in university on economics, and is now engaged in railway work, who expresses regret that there are not more professors in our universities who "come in contact with the actual problems of the present day," instead of showing themselves up and proceeding "to work out the problems by theory." Few persons who have lived in close contact with practical business affairs, and also read the literature dealing with these affairs which emanates from the schools, have failed to feel a similar regret. In the field of railway economics, for example, there are several university professors who really know their subject, but there is a larger number who are far from knowing it. Seldom has there been a more pitiful disclosure of the ignorance of men who think themselves wise than the discussion of the subject, "The Control of Public Service Corporations," at the meeting of the American Economic Association in Minneapolis last December. The trouble with most of the economists who treat matters of this kind is that they have never had any of the hard, practical experience in earning their livings as managers or employees of business concerns which is absolutely essential to give a man the atmosphere of commercial and industrial life; to show him what can and what cannot be done with human nature, and to convey to him in the most impressive manner information regarding the risks of loss that are taken and the losses that are actually incurred in business, as well as the opportunities for gain and the gains that are actually made. There has been a remarkable development of colleges of business administration within recent years. Several of them are doing excellent work in the field of railway economics. But the thing most needed to make valuable the work in this field done by many of them is to teach the professors their business by bringing them into contact with, and giving them a real knowledge of, the railway business.

The Tipton Ford Collision

The disastrous butting collision near Tipton Ford, Mo., August 5, reported last week, page 255, is said to have been due to disregard of a despatcher's order by the southbound train, which had run about one mile beyond the appointed meeting station. The trains were both running at good speed and the southbound train, consisting of a single gasolene motor car, was almost instantly enveloped in flames from burning gasolene. Of 77 persons in this car only five escaped injury; and 47 were killed or fatally injured. The three members of the crew of this car were killed. The chief lesson of the collision—that nothing less absolute than the block system affords adequate protection for passengers—can scarcely need repeating for readers of the *Railway Age Gazette*. An officer of the road is quoted as saying that this is the first time since the introduction of gasolene motor cars

on railroads that there has been a collision in which fatalities were due to the type of car; that is to say, in which gasolene has caught fire and passengers have been burned to death; and such cars have been in use 15 years. Quite true, no doubt. But that is a very deceptive statement and it may afford a false comfort. For the first ten years of this period the number of cars in use was very small. The great majority of them are used on lines of light traffic. Increasing use may make the liability to collision in the next five years, twenty or fifty or more times as great as in the last five. For the hundredth time we are warned that the thing to do is to prevent collisions, not merely mitigate their effects. To the extent that a gasolene engine is more terrible than a steam boiler and its firebox, this horror is a more vivid warning than have been former collisions. And the use of the block system on single track, as a safeguard against butting as well as rear collisions, is no longer an experiment—though the reluctance of some roads to adopt it would seem to indicate doubts of its availability. The simple manual system, properly managed, is, no doubt, superior to the "time-table and train-order" system; the simple manual with despatchers' supervision has made a great reputation for safety on the Erie and the Northern Pacific; the controlled manual has proved its reliability on the Pennsylvania; and the virtues of the electric train staff are known everywhere.

WHY APPEAL TO THE RAILWAYS?

WHEN the great war in Europe began this country was threatened with a strike of all the engineers and firemen on the western railways. The President of the United States appealed to the committee representing the employees and to the committee representing the roads to avert the peril. Why the government felt free to appeal to the employees in the name of patriotism and the public welfare is easy to understand. But did it have any right to feel free to appeal on these grounds to the managers of the railways? In railway wage arbitrations conducted under federal law the arbitration boards have without quibbling given the employees every single cent to which they have believed them entitled.

But just before this appeal was made to the railways to prevent a strike the Interstate Commerce Commission had rendered an opinion holding that the railways throughout the east needed larger revenues, but at the same time refusing to allow them to make anywhere near as large advances in their rates as their situation demanded.

The Sherman anti-trust law applies to both combinations of labor and combinations of capital. The government has studiously refrained from enforcing this law against combinations of labor, and it is now engaged in modifying it so that it will not apply to them. Through the Interstate Commerce Commission the government has condemned the railways for not introducing economies in their operations which cannot be introduced except by joint action of the carriers, and then by enforcing the Sherman law has prevented, and still prevents, the roads from taking the joint action which, in effect, the Interstate Commerce Commission commands them to take.

The courts have issued injunctions to prevent violations of law by both combinations of labor and railway corporations. Congress is now engaged in passing legislation which will prevent the courts from effectively using the process of injunction against labor, while leaving that process to be used in its full force against capital, including railway capital.

A short time ago a government commission reported that the compensation paid to the railways for carrying the mails is unremunerative. Promptly there was introduced in Congress a bill not to increase, but to further reduce the mail pay of the railways.

And yet, when a great strike threatened the government appealed to labor and to the railways alike, and labor showed its appreciation of what the government has been, and is, doing for it by refusing to concede anything, while the railways showed their usual disposition to turn the other cheek by withdrawing all of the demands they had made on their employees and accepting a one-sided plan of arbitration.

The railway managers did right. By the same token the leaders of labor did wrong. How is the government going to show in the future its appreciation of the very different attitudes assumed at this time of crisis and peril by organized railway labor and by the managers of the railways?

FREDERIC A. DELANO

THE railway service of America loses and the public service gains, by the retirement of Frederic A. Delano from the presidency of the Chicago, Indianapolis & Louisville Railway to become a member and vice-governor of the federal reserve board. Mr. Delano's railway career has been unique in some ways. He has never been the head of one of the larger railway properties. Neither the Wabash nor the Monon, of both of which he has been president, ranks among the really great systems. Yet for years Mr. Delano has taken rank among the foremost leaders of the railways of this country. That he has never been president of one of the great properties may be because he has not wanted to be. That he has been recognized, both inside and outside the railway business, as a leader in his field has been because he has possessed and exercised qualities of character and intellect which would have gained him eminence in almost any line of professional or business endeavor.

The attractions of his personality are such that he has been as popular with those whom he has had to oppose as with those with whom he has fought side by side. A graduate of Harvard University, he has always been a student in the broadest and truest sense. Beginning his railway work as a machinist's apprentice, becoming a mechanical expert, serving for some time as a superintendent of motive power, and being before this a superintendent of terminals and afterward a general manager, he never allowed his interest in the technique of transportation to absorb all his energies, but so applied himself to the study of the economic side of the transportation business as to become recognized as one of the leading railway economists of the country. A successful executive, he has been also a railway statesman, who has thoroughly understood and fully appreciated the delicate and important relationship which the railway business bears to the public, and the consequent necessity of managing the railways with due regard for the public's rights and susceptibilities, and of educating the public regarding the rights and needs of the railways. Courageous in criticising bad and advocating good regulation he has been equally courageous in defending good and criticising bad railway management.

Mr. Delano's keen interest and absorbing work in the railway business have never prevented him from taking a keen interest in economies and public affairs in the broader sense. The appreciation in which he has been held by at least two presidents of the United States is illustrated by the fact that President Taft offered him the ministry to China and membership on the Interstate Commerce Commission; that President Taft also nominated him for membership on the industrial commission; that his nomination to this commission not having been confirmed, President Wilson renominated him to it; and that now President Wilson has appointed him a member and vice-governor of the federal reserve board.

There is no higher minded or abler class of business or professional men in America than the officers of our railways. There are numerous men among them who could take into the service of the different departments of the government experience and talents which would be infinitely valuable to the government and the public. It is unfortunate for the government that so few of them have ever been taken into its service. Possibly, however, this has not been entirely the fault of the government, but has been partly due to the fact that few railway men have shown the interest and taken the active part in civic affairs that Mr. Delano has.

In accepting a government appointment, obviously Mr. Delano makes a heavy sacrifice, financially and otherwise. The government of this country would be a great deal better in the long run if there were taken into its business more men who, like Mr. Delano, are willing to make financial sacrifices in order to perform a public service and a public duty. How strangely reluctant the country usually has been to accept the self-sacrificing services of such men; and how strangely willing to accept the services of men who offer themselves merely to get more of the loaves and fishes than any private employer considers them worth!

PULL TOGETHER

IN its decision in the Eastern rate advance case the Interstate Commerce Commission, while authorizing only a small part of the increases in rates sought by the railways, suggested a number of plans by which it believes the railways could increase their revenues. Railway men do not take much stock in the commission's suggestions. They regard them as makeshifts intended to justify the commission in refusing substantial advances, or academic theorizing, which could not have proceeded from a body of men whose members had had practical experience in railway operation, or practical experience in any walk of life in which they were obliged to handle men and regularly meet pay rolls. Whether the railway officers are right or not in their attitude, it must be clear to them as practical men that it is their duty to their companies to get together and pull together in an honest and determined effort to carry out all the suggestions made by the commission which are at all practical.

The commission has broadly intimated that it believes that the passenger rates in eastern territory are too low. The railways reply that they cannot raise them because of state legislation. But the state laws do not prevent them from raising the interstate passenger fares. If they should raise the interstate passenger fares the result would be a discrimination against interstate commerce similar to that which the Interstate Commerce Commission, and later the Supreme Court, condemned in the Shreveport case. The discrimination would consist not in the interstate rates being too high, but in the state rates being too low. Would not the creation of such a situation empower and practically compel the Interstate Commerce Commission to nullify the state passenger fare laws? Should not the eastern lines get together at once and take whatever steps they can in the direction of enabling the Interstate Commerce Commission to co-operate with them in making advances of both state and interstate passenger fares?

The commission shows that it believes that many freight rates throughout eastern territory are relatively too low, and are in fact unremunerative. It gives in its opinion a list of the average earnings per car mile from 30 commodities moving in large quantities, and adds the significant comment "that they disclosed many rates yielding barely enough revenue to pay for the use of the equipment." No regulating body in its right mind would hold that rates were reasonable which barely covered the cost of using the equipment, and therefore the commission's comments on this subject seem to be a direct invitation to the roads to make advances in certain rates.

The commission criticizes the roads for rendering some terminal services for actually less than cost and for paying allowances to shippers for rendering services which the shippers should render for themselves. When the carriers have filed tariffs covering matters of this sort they usually have been suspended, but it is evident that if they are persevering they will ultimately be able to act upon the commission's suggestions in some way that will increase their revenues.

There are two unanswerable arguments in favor of the railways trying to carry out the commission's views. The first is that by doing so they will secure some additional revenue, and although this may not be as large as the commission thinks, whatever it is, it will be worth having. The second unanswerable argument in favor of trying to carry out the commission's suggestions is that unless the roads do so, they will never again be able to present a petition for more or less general advances in rates with any hope whatever of success. The commission seems to believe that by adopting certain methods which it indicates the roads can secure all necessary increases in their revenues. If the roads can get the necessary increases in their revenues by the means which the commission suggests, then there will be no need for resorting to other means; and they will never be in any position to show the commission that they cannot get them by the methods the commission suggests until they have made a vigorous effort, in good faith, to do so.

One of the main reasons why the railways in all parts of the country have made rather poor progress in the past in solving the problems with which they have been confronted, and especially the rate problems, is that they often have failed to pull together. One road has had one kind of traffic that it has wished to "protect," another has had a large shipper or class of shippers that it has wished to "protect," another has had one or more communities that it has wished to "protect." Instead, therefore, of pulling together they have pulled apart and mutually cut each other's throats. In the endeavor of each of them to get some advantage, fair or unfair, the interests of all have been sacrificed. If there ever was a time for that sort of thing it is now past. The developments in the immediate future will show whether the policies of some railways are dominated by petty men who cannot see beyond the ends of their noses, or whether the roads as a whole are dominated by men whom the mistakes of past experience have taught how to deal with present conditions.

SHOP PAINT FOR STEEL BRIDGES

SPECIFICATIONS for steel railway bridges usually require the application of a coat of oil or paint to the steel in the erecting shop. The following typical clause is from the American Railway Engineering Association's 1910 Specifications: "Steel work, before leaving the shop, shall be thoroughly cleaned and given one good coating of pure linseed oil, or such paint as may be called for, well worked into all joints and open spaces." The use of oil is not favored by many engineers, although it is still used to a limited extent. It is generally considered necessary to adhere to the practice of shop painting in order to preserve the steel from corrosion during the period before it is erected and painted in the field. But this opinion is not universal, as proved notably by the Pittsburgh & Lake Erie practice in handling the large structures on its new terminal line, the Lake Erie & Eastern, at Youngstown, Ohio, referred to elsewhere in this issue. A considerable amount of structural steel has been erected without being given any shop coat of paint.

A limited amount of highway and minor railway bridge work has also been handled in this way; but the size and importance of the Lake Erie & Eastern structures, and the length of time elapsing between rolling and painting, amounting to a maximum of about two years, make this a significant instance in railway practice.

The two principal reasons advanced in favor of dispensing with shop painting, are the difficulty of securing a satisfactory application in the shop and the tendency for the rolling scale to become loose after the steel has received the usual shop and field coats of paint, in which case the paint is removed when the scale comes off. Several factors affect adversely the quality of shop painting. The surface of the steel is usually in poor condition to receive paint. Oil and grease are accumulated during fabrication, and when the material is handled in an open yard, dirt and moisture are especially likely to be present. In addition, little attention is paid to weather conditions, which are often unfavorable for satisfactory painting. The work is usually

done by unskilled laborers, often with little supervision and scant inspection. The quality of the paint is also likely to be poor, either because an inferior grade of paint is furnished or the workmen add elements to make it cover more or spread easily.

The scale that covers the surface of steel when it comes from the rolling mill is known to be the cause of many of the defects that appear, even when the steel has been painted according to the best practice. Moisture may get through pin holes or other defects in the coats of paint and set up corrosion between the scale and the metal. This process loosens large pieces of scale which fall off and, of course, take the paint off with them. This condition can frequently be seen on structural steel. If the steel has been stored for a time before fabrication, a part of the rolling scale will be displaced in handling the pieces, and this is especially the case with structures requiring a large amount of shop work, particularly punching and riveting. Even after fabrication, a great deal of the mill scale still adheres to the steel, and it is this part that it is sought to remove by exposure to the weather without paint.

Engineers who have followed the practice of dispensing with shop painting for structural steel building material have been well satisfied with the results, although in such work the steel is usually erected within six months of the time of rolling and sometimes much sooner. It is subsequently enclosed so that the preservation of the steel is a much less difficult matter than on bridges and other exposed structures. A highway bridge, erected at Dubuque, Ia., in 1900, was not painted until after erection, some four to five months after the steel was rolled. The steel had acquired a thin coat of red rust which was removed by wire brushes, leaving a much better surface for the application of the paint than would have been possible in the shop, and at the same time eliminating the rolling scale. The engineer in charge of that work regards the quality of the painting on that bridge as the best ever secured in his experience. A much better coating of the steel can undoubtedly be obtained in field painting than in the shop on account of the superior skill of the men employed in this work, the ability to clean the surface well, to wait for favorable weather conditions, and to inspect the work competently.

Some men may agree that small structures, such as plate girders, signal bridges or highway structures, whose erection would usually follow closely after the ordering of the material, may be given the first coat of paint in the field with good results, but will hesitate to let steel in large structures, which may be held from one to two years, or even longer, before erection, go from the shop unpainted. It would be impossible to fix any limit to the age of steel beyond which it would be of doubtful expediency to let it go unpainted. The condition of the metal at a given age depends on a large number of factors, including the condition under which it has been stored, the climate, etc., so that one lot of material might lose materially in weight and show objectionable rust scales, when another lot of the same age that had been exposed less, would have the rolling scale removed, but would show only a red rust that could easily be removed and would leave little doubt as to the ability of a good coat of paint to stop corrosion.

In addition to the question of the degree of protection afforded by shop painting or field painting, the ultimate cost must be taken into consideration. There is no doubt that the cleaning required on the Lake Erie & Eastern structures is expensive, and, in view of the thorough manner in which this work is being undertaken, it is conceded that the cost of the three coats and the one cleaning will exceed that of one shop coat, a superficial field cleaning and two additional coats of paint. Time alone will determine the life of the paint, but there seems little question that it will be increased. The Pittsburgh & Lake Erie engineers are to be commended for taking a step so much in advance of current practice, and the outcome will be watched with interest.

NEW BOOKS

The Railway Library for 1913. Compiled and edited by Slason Thompson, director of the Bureau of Railway News and Statistics, Chicago. 469 pages, 5 in. by 7 in., bound in cloth. Published by the author, Chicago. Price 50 cents.

This is the fifth annual issue of "The Railway Library," the first of which was issued in 1909, and, like the previous edition, it brings together selections from the noteworthy addresses and papers of the year relating to railway subjects. As in former issues, the concluding chapter consists of the annual statistical report of the Bureau of Railway News and Statistics for 1913, in which is presented the latest information in regard to American and foreign railways, the space devoted to the latter being greatly increased. The general rule has been to restrict the selection of articles to matter first given to the public in the year 1913, but the date of publication enables the inclusion of several articles of the current year. As in previous editions, the plan governing the selection of material has been to place in permanent form an outline of the principal railway problems of the day, as expressed in public reports and in the utterances of railway authorities, including practical railway men, members of railway regulating bodies, and economists, which have appeared in the form of addresses or in periodicals, and which might not otherwise be readily available to those who may be interested.

The volume opens with a brief summary of "Fifty Years of British Railways," abstracted from the Jubilee Number of the London *Railway News* for the purpose of presenting a comparison of the problems that have confronted railway builders in the United States and Great Britain. Railway conditions as they exist at the present time are outlined in the testimony of President Samuel Rea of the Pennsylvania Railroad before the Interstate Commerce Commission in the advanced rate case. Immediately following is a group of papers presenting the same situation from several different angles, including papers by B. H. Meyer of the Interstate Commerce Commission on "Certain Considerations in Rate-Making," and "Prices and the Raising of Rates," by Clement Colson of the French Institute.

Then follows a series of articles relating to the nationalization of railways, treated from the historical, political and economic points of view. This group includes the concluding chapter of Samuel O. Dunn's recent work on "Government Ownership of Railways," and an exhaustive synopsis of Prof. W. J. Cunningham's "Analysis of the State Railways of Prussia-Hesse," and an article on the Belgian railways by M. A. Pierrard, director of the Belgian Marine Administration. Papers devoted to the labor situation include an address on "Mediation and Arbitration" by Seth Low, president of the National Civic Federation; an article on "Labor Unions and the Railroads" by J. O. Fagan; an address on "Workmen's Compensation" by Frank V. Whiting, general claims attorney, New York Central Lines, and an article on the Sunset Lines Strike from the *Railway Age Gazette*. The trespassing problem is dealt with in an article on "A Nation's Neglect" by Marcus A. Dow, general safety agent, New York Central Lines, and the various questions involved in the valuation of railroads are discussed in an address by C. A. Prouty, director of valuation for the Interstate Commerce Commission.

Other articles include an article on the apportionment of expenses to suburban traffic on the Southern Pacific electric suburban service in Alameda county, reprinted from the *Railway Age Gazette;* "Are Increased Trainloads Practicable," by Charles F. Speare, from the *Railway Age Gazette;* "Fair Pay for Carrying the Mails," by Ralph Peters, chairman of the Committee on Railway Mail Pay of the American Railway Association; "The Ohio Floods in 1913," by Lewis S. Bigelow; "The New Haven Situation," by Howard Elliott; "Canals and Railways," by W. M. Acworth, and "War Time Railroading in Mexico," by Major Charles Hine.

Letters to the Editor

BUSINESS PROBLEMS AND THE ECONOMISTS

PHILADELPHIA, Pa., July 12, 1914.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

The article, "Methods of Railway Taxation in Michigan," by Prof. Friday, in your issue of June 12, 1914, was read by me with a great deal of interest.

It was my good fortune to graduate from the University of Michigan, and to know personally both Prof. Friday and Prof. Adams, and know both of them very well, both in and out of the class-room.

All that Prof. Friday has said is perfectly true, and the railroad situation in the state of Michigan is a serious one at the present time. I do not mean to say that it has all been brought about by legislation and taxation. That would be going too far. But certainly the taxation method at present employed in that state does not seem fair, to put it mildly.

Men in our state universities can do a great deal, if they choose, to help mold public opinion. I think that holds truer in the West than here in the East. I only regret that there are not more men in our universities like Prof. Friday and Prof. Adams —I mean men who engage in outside work, who come in contact with the actual problems of the present day; not men who shut themselves up and proceed to work out the problems by theory. Modern business problems cannot be solved that way. I have realized this, because since my graduation I have become engaged in railway work and I have found very little of the theoretical in it.

CHARLES E. FISHER.

THE ROCK ISLAND'S MOTION PICTURES

CHICAGO, July 3, 1914.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

I have read with interest your notes, printed June 26, concerning motion pictures, and their use on the Pacific Electric Railway for the instruction of employees. L. F. Shedd, general safety supervisor of the Rock Island, has used motion pictures for some time. The Rock Island Lines Safety Bureau was organized August 1, 1912, and a reel of motion pictures for instruction in "safety first" and "prevent injury" was made use of very early in the campaign. This reel has been shown before upwards of 25,000 persons, including railroad employees and their families, city officers and the general public.

The pictures were taken at Rock Island yards and stations, and therefore have a very direct home interest for Rock Island employees; but they have also been used some by other roads. Dangers are illustrated in a real way, yet nothing gruesome is shown; no loss of life or limb and no shedding of blood. Many of the subjects are those with which your readers are already familiar, from photographs which have been published broadcast. For example, getting on to the front of a moving switch engine; this is shown in actual movement instead of a dead picture such as must be used in giving instructions by circular. The companion picture to this is one showing a man boarding the foot board while the engine is at a standstill. Companion pictures are in like manner shown to represent the dangers of hanging on the side of a freight car, where the man strikes a low switch stand; passing between freight cars while they are in motion to loosen a coupling pin; kicking a drawbar into position while cars are moving towards the train man; grabbing the handhold on the front end of an approaching car and riding there, with feet on the brake beam; car inspectors nearly injured by reason of having failed to use the blue flag; jacking up a car and taking out the trucks, leaving the body resting on the jacks as its only support; moving a string of freight cars over a street crossing with no one on the leading car; passenger attempting to board a moving train; scenes in the car shops, etc.

Mr. Shedd has been very successful in getting the families of employees interested; and not only these families, but their neighbors, the general public. In many towns, the mayor has acted as presiding officer, opening the public meeting.

There is no question of the value of this kind of instruction. As you have suggested, in your editorial, it is very desirable, if not necessary to have other and entertaining features in connection with lectures on motion pictures. One good plan is to get a committee of employees actively interested in the entertainment features. At one of the Rock Island shops there is an excellent glee club, which has done good service in the way of entertainment. Even in small places, where the formation of a glee club is not, perhaps, practicable, individuals who can sing, or speak, or play musical instruments, can increase the interest. Local talent is always well appreciated.

G. E. M.

AMERICAN SOCIETY FOR TESTING MATERIALS

PHILADELPHIA, Pa., July 20, 1914.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

The reference to the recent annual meeting of the American Society for Testing Materials, held at Atlantic City, N. J., June 30-July 3, as well as the editorial relative to the Society in your issue of July 10, are both calculated, in my judgment, to convey impressions that are not only erroneous but unfair to the Society.

Your brief review of the annual meeting contains the following statement with reference to the discussion following my paper on "A Critical Review of the Procedure Governing the Adoption of Standards":

> Attention was called in the first place to the low estimate in which many of the specifications of the Society were held by the users of materials on the ground that they were voted upon by men who had no knowledge or experience to guide them in their decision.

I wish to challenge the correctness of the sweeping statement that many of the specifications of the Society are held in low estimate by the users of materials. Permit me to say that in my long and active connection with the Society extending over a period of 16 years, I hear for the first time objections to its standard specifications based on the ground here alleged, namely, that the value of specifications should be judged, not on their intrinsic merits, but on the fact that as a final act in their adoption, the proposed standards are referred to letter ballot of the Society at large, and therefore to the vote of a group of individuals of whom many are not qualified to pass expert judgment on a given specification.

The wisdom of adhering to the present policy, by which specifications are finally subjected to letter ballot of the Society, is concededly debatable, and this question was, as a matter of fact, submitted for discussion in open meeting at the recent convention. This was done, however, with no thought that the continuance or discontinuance of this feature of the procedure might serve to raise or lower the high estimate which now attaches to the standards promulgated by the Society, under a system so elaborate that its description in detail would prove wearisome to your readers. Suffice it to say, briefly, that this system provides that proposed specifications are first voted on by the sub-committee with which they originate; second, by the parent committee by which they are reviewed; third, by letter ballot of the entire parent committee; fourth, at the annual meeting of the Society; and, fifth, by letter ballot of the Society at large. To refer a proposed specification to letter ballot requires a two-thirds vote of those voting at the annual meeting.

In that connection permit me to quote the following statement from your editorial:

> Piazza talk sometimes is a far better indication of what men are really thinking than the discussion on the floor, and at Atlantic City last week there was more than one hint thrown out that the committee reports are getting to be dominated by the manufacturing interests. This may or may not be true, and one can only be convinced one way or the other by a careful consideration of the reports in the fullest detail. But the point is that there should be no suspicion of such a thing.

It is indeed surprising that a journal of your standing should give space in an editorial, and on so shadowy a basis as

"piazza talk," to a statement which strikes at the very root of the principles on which the Society must stand or fall. That the charge is fundamentally unfair can be best shown by the following presentation of facts and figures, which, except as to the analysis of the vote between producers and consumers in the accompanying table, were all available in printed form at the recent annual meeting of the Society.

In my own paper I called attention to the fact that on 27 of the 28 technical committees dealing with matters having a commercial bearing, "the non-producers outnumbered the producers, and, on the average, in the proportion of seven to four." Committee A-1 on Standard Specifications for Steel, whose work you criticised, consists of 71 non-producers and 37 producers. In my paper, previously referred to, it is stated that according to the records of this committee "the total attendance at the seven meetings held since January, 1913, was 251, divided in the proportion of 158 to 93 as to consumers and producers, respectively." On this committee many of the leading railroads are represented by able and aggressive men who would promptly withdraw from the committee if any ground whatever existed for the charge advanced in your editorial. In further answer to that charge I adduce below, in tabular form, a detailed analysis of the vote of this committee on each subject recommended for action by the Society at the recent annual meeting, from which you will note that with the single exception of the proposed revision of the standard specifications for steel rails, than which there is perhaps no subject on which it would be more difficult to harmonize conflicting opinion, the vote of the committee on every item is one of substantial unanimity.

Analysis of Vote of Committee A-1 on Standard Specifications for Steel

Membership: Consumers, 71; Producers, 37; Total, 108

Proposed Standard Specifications; New and Revised.	For adoption			Against adoption			Not voting		
Revisions in present standard specifications:	C.	P.	T.	C.	P.	T.	C.	P.	T.
Low carbon steel splice bars	37	20	57	4	0	4	12	9	21
Medium carbon steel splice bars	36	20	56	6	0	6	11	9	20
High carbon steel splice bars	36	20	56	6	0	6	11	9	20
Extra high carbon steel splice bars	36	20	56	6	0	6	11	9	20
Structural steel for bridges	42	23	65	1	0	1	10	6	16
Structural nickel steel	42	18	60	1	0	1	10	11	21
Structural steel for buildings	42	23	65	0	0	0	11	6	17
Shapes, mill plates and bars	37	23	60	1	0	1	15	6	21
Billet steel reinforcement bars	39	21	60	0	0	0	14	8	22
Carbon steel car and tender axles	35	22	57	2	1	3	16	6	22
Cold rolled steel axles	33	19	52	0	0	0	20	10	30
Proposed revised standard specifications to supersede present standard specifications:									
Carbon steel rails	29	18	47	12	2	14	12	9	21
Carbon steel and alloy steel forgings	42	24	66	1	0	1	10	5	15
Quenched and tempered forgings	37	21	58	1	1	2	15	7	22
Carbon steel forgings for locomotives	37	25	62	0	0	0	16	4	20
Proposed new standard specifications and methods:									
Structural steel for cars	39	23	62	2	1	3	12	5	17
Carbon steel bars for springs	36	21	57	3	2	5	14	6	20
Chemical analysis for plain carbon steel	41	26	67	0	0	0	12	3	15
Miscellaneous:									
Recommendations relative to fracture	47	27	74	1	0	1	5	2	7

Votes cast, 82; not voting, 26; total, 108.

Note.—C. = consumer; P. = producer; T. = total.

While the above table is limited to the records of a single committee, I wish to point out that the analysis of the vote of every committee on such matters as were recommended for action by the Society, and on the report as a whole, is recorded in its printed report, and that all matters on which favorable action was taken at the recent annual meeting of the Society were recommended with substantial unanimity on the part of the committees concerned. This circumstance, in connection with the consideration of the published personnel of the committees, should serve as a definite and conclusive answer to any unwarranted inference from your allusion to "piazza talk."

Your editorial further stated that "there are some of the specifications that have been referred to letter ballot at this meeting that appear to be useless," and, as an example, you single out the specifications for cast iron for use in locomotive cylinders. In commenting on this you say:

> It is doubtful if the few large locomotive builders of the country would allow their methods of foundry practice to be modified by the specifications of the Society, nor is it conceivable that any railroad making its own cylinders would consider itself bound to use these specifications for its own work simply because it has been adopted as a standard by this Society.

In reply it may be said that the proposed revision of these specifications, recommended at the recent annual meeting, was made at the joint desire and with the direct co-operation of representatives of leading locomotive builders and railroad interests because it was felt by both parties concerned that a proper specification for this class of material did not exist. Since these specifications have been revised in accordance with the joint wishes of makers and purchasers of locomotives, it is to be anticipated that they will be widely used.

In your editorial reference to the Electric Railway Association in the matter of heat-treated axles as applied to motor axles of electrically driven cars, you state in substance that the negative action in this matter was inconsistent with the action in the case of steel springs for automobiles, and with the recognition accorded to the Master Car Builders' Association in connection with the discussion of another matter on the floor. Permit me to point out that the two cases—the one relating to springs and the other to axles—are wholly different in that the requirements for springs for automobiles differ essentially from those for springs for railway cars, whereas in the case of axles the requirements of the leading railways in connection with their electrically driven cars are practically identical with those of the constituent companies of the Electric Railway Association. In the case of the railways the same engineers are in responsible charge of the purchase of axles for both steam and electric motor cars. The numerous representatives of the railway interests on Committee A-1 were unanimously of the opinion that the specifications recommended for adoption on the part of the American Society for Testing Materials would insure a better product than those proposed by the Electric Railway Association. In the letter ballot of Committee A-1 on these proposed standard specifications only two negative ballots were cast, as noted in the above table.

The unfair attitude of the editorial is further evidenced in the regret "that there are not more papers giving the results of the personal research work of the members. Many of them are engaged in work of this character all of the time and it is regrettable that more of it does not come to the light of day at these meetings." In reply it is only necessary to call attention to the fact that no fewer than 32 papers of this character, aggregating 409 printed pages, were presented at the recent meeting. In explanation of the supposed paucity of material of this kind you suggested in your editorial, that "men do not like to present the results of their work in which they are vitally interested to a meeting in which their own presentation must be limited to a few minutes and the discussion thereon to seconds." Without dwelling on the manifest exaggeration of this statement, I shall content myself by reaffirming that the complaint is directed against something which has no existence, and that the value of verbal, as distinguished from written discussion, has its distinct limitations irrespective of the time element. The writer of the editorial appears further to have lost sight of the vast amount of research work conducted by the technical committees as an essential basis of their recommendations, and other research work done under their auspices solely with a view of promoting knowledge within their respective fields.

The general unfairness of the editorial lies, however, not merely in that which was said, but, in no less an important degree, in that which was left unsaid. As a single example attention may well be called to the valuable report of 125 pages on the part of Committee D-1 on Preservative Coatings for Structural Materials, which both your review and your editorial criticise in the allusion to the Havre de Grace and Atlantic City paint tests.

Edgar Marburg,
Secretary-Treasurer.

Railroad Development in the Philippine Islands

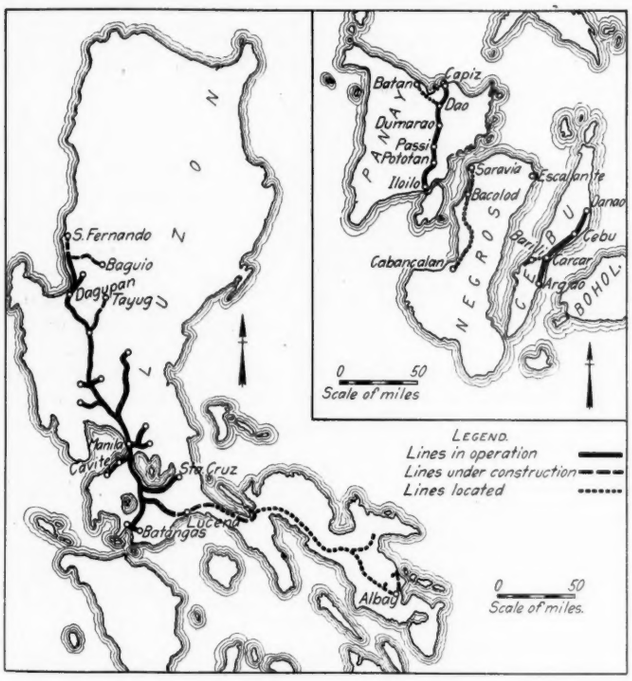
A Discussion of the History, Engineering Features, Organization and Traffic Problems of These Roads

By C. H. Farnham

Formerly Chief Engineer, Cebu Division, Philippine Railway Company

The question of transportation was one of the most difficult problems with which the American military forces had to cope in their early campaigns in the Philippine Islands. There was hardly a road that was better than a rough trail. There was one line of railroad running from Manila north to Dagupan, on the Island of Luzon, and this road was partially destroyed by the Filipinos in their retreat before the American advance. It was rebuilt as fast as the American forces took possession, and was operated by soldiers as a military railroad for the use of the army in its campaign. Thus almost from the first, American influence began to be felt in the railroad development of the Islands.

This first railroad in the Philippine Islands was called the Manila & Dagupan, and was built and owned by an English company under a concession from the Spanish government. It was first operated in 1892. It is the oriental gage, (3 ft. 6 in.), and 122 miles in length. The country through which it runs is



Map of Railroad Lines in the Philippine Islands

a great alluvial plain, with numerous rivers and swamps and is densely populated, and one of the richest rice growing sections in the islands. The construction is light for the greater part of the line, although there are several fairly expensive bridges, the one crossing the Rio Grande de Pampanga at Calumpit having cost $500,000. A section, several miles in length, in the Province of Tarlac, is subject to bad washouts during the rainy season, and must have cost a considerable amount in repairs since the line was first built. This condition is caused by the overflow of the Tarlac river.

Before American occupation the equipment was all English, consisting of the old style compartment coaches for passengers, small goods vans, and light engines. The operating force consisted of a few Englishmen in charge of departments, and in the head office at Manila. All train crews, section gangs, shop crews, station agents, telegraph operators, and the greater part of the clerical force, were Filipinos. All of these natives had been trained by an English manager and his assistants, who had been sent out from England to build and operate the road. Business was none too brisk, and the road just about managed to keep its head above water. It never paid a dividend. When the Spanish war broke out in 1898, followed by the Filipino insurrection in 1899, the road was put entirely out of business. Much of its property was destroyed, and from 1899 to 1901 it was operated as a military railroad by the United States army.

Under the army, the line was repaired and put in shape so that trains could be run; rolling stock was repaired, and new engines and cars were brought from the United States, this being the first American equipment introduced into the islands. The operating forces were American soldiers, and some civilians picked up in Manila. As soon as a measure of law and order was restored along the line, and while yet under the military control, a considerable amount of commercial business was done. Finally in 1901, the line was turned over to the English company and was again operated by it in much the same manner as before.

This was the railroad situation in the islands in 1901, when the civil government was established, and it remained practically unchanged until 1905. There were several small branch lines built by the Manila & Dagupan under concessions granted by the Philippine government. This company also improved its main lines, bought new rolling stock, rebuilt some of its stations and gradually increased its business from year to year.

Among the first things to which the new civil government devoted its attention was the improvement of the means of transportation. To this end it started a road building program. The question of railroads was also taken up very early, but it was a much less pressing and a far greater financial question than the building of ordinary highways.

Under an act of the United States Congress, approved July 1, 1902, the Philippine government was authorized to grant concessions for railways and under an act dated February 6, 1905, it was allowed to guarantee the interest on bonds issued for the construction of railroads. Acting under the authority of these laws, the Bureau of Insular Affairs at Washington, on June 12, 1905, advertised for bids to build certain railroad lines in the Philippine Islands. The lines advertised were located as follows:

Island of	Luzon	833 miles
" "	Panay	100 "
" "	Negros	100 "
" "	Cebu	95 "
" "	Layte	55 "
" "	Samar	50 "

Several bids were received by the bureau, but as they all departed materially from the terms of the proposal, they were rejected.

New proposals were advertised by the bureau on December 20, 1905. These modified the conditions in many ways, and allowed more latitude to prospective bidders. To this second proposal two bids were submitted, one by Speyer & Co. for certain lines on the Island of Luzon, and the other by a group of New York financiers headed by William Salomon & Co., and including among others, J. G. White & Co., Cornelius Vanderbilt and Charles M. Swift, who proposed to build the lines on Panay, Negros and Cebu. The proposals were accepted by the bureau, and resulted in the formation of two railroad companies. The Manila Railroad Co. took over the concessions granted for the

lines on the Island of Luzon. The Philippine Railway Company received the concessions for the building of lines on the Islands of Panay, Negros and Cebu.

THE MANILA RAILROAD COMPANY

The Manila Railroad Company was organized under the laws of New Jersey in 1906, and took over the concessions granted to Speyer & Co. This company also acquired control of the old Manila & Dagupan line, thus placing all the lines on the Island of Luzon under one management. As a matter of fact, the English owners of the old line are largely interested in the new company, and the same management that operated the old Manila & Dagupan line now operates the new lines, so that it is really but an expansion of the old company.

The lines that this company operates and is building are divided into two main divisions, based upon the fact that some of them have the interest on their bonds guaranteed by the Philippine government in the same manner as the Philippine Railway Company lines, and that others have not this guarantee. It was at first intended to build all the lines without the guarantee, but a modification was made in 1910, and part of them were placed on the guarantee basis.

The Northern, or unguaranteed lines, consist of the old Manila & Dagupan of 122 miles; several small branches built under concessions from the Philippine government prior to 1905, totaling 95 miles; and new extensions from Dagupan to San Fernando de Union and Camp One, also three branches in Pampanga and Tarlac provinces, with a total of 137 miles. This makes a total of 354 miles in this division. All of these lines are either in complete operation or are under construction, with the exception of one small branch of 20 miles in Pampanga province. About 27 miles are under construction, mostly on branch lines. There is also a line under construction from the Dagupan-San Fernando de Union line to Baguio, the summer capital. While this line is physically a part of the Northern Division, it is a guaranteed line, and is included in that division. At present the route used to reach Baguio is by railroad as far as Camp One, and then by stage over the famous Benguet road. All of these lines are through one of the best sections of the islands, and have a large and comparatively prosperous population to serve. They are doing an increasing business from year to year, and really form the backbone of the whole Luzon system.

The Southern, or guaranteed lines, consist of all lines south of Manila and the Baguio Line. The main line south runs from Manila to Albay at the southern point of the Island of Luzon, a distance of 355 miles. At present this line is complete and in operation as far as Lucena, a distance of 88 miles from Manila. The Batangas, Cavite and Santa Cruz branches are all completed and in operation, with a total of 88 miles. The Baguio line of 25 miles and 95 miles of the main line south, are under construction at the present time. This makes a total of 468 miles in the southern lines, of which 176 miles are completed and in operation, 120 miles are under construction, and 172 miles have not yet been put under construction.

The following is a statement of the proposed construction and completed mileage:

	Northern Lines	Southern Lines	All Lines
Completed	306.6 miles	176.1 miles	482.7 miles
Under construction	26.8 "	120.5 "	147.3 "
Const. not commenced	20.9 "	171.9 "	192.8 "
Totals	354.3 "	468.5 "	822.8 "

The lines already built and in operation have done a very good business and their future ought to show a substantial increase. They are in a populous and rich country, and are all within a short distance of Manila, a city of 235,000 inhabitants and the commercial metropolis of the Archipelago. During 1912, about 40 miles of line was completed and placed in operation. In 1913 less than 20 miles was opened. The company expects to complete all lines by 1918. This gives four years in which to complete 340.5 miles, or 85 miles per year, and while this is greater progress than has been made during the past two years, it is not impossible.

The lines are all the standard (Oriental) gage—3 ft. 6 in. with 2 per cent. grades and 8 deg. curves on most of the lines. None of the lines built so far comprises heavy work. Sixty pound rail and native hard wood and Australian ties are used. Native contractors were employed quite extensively on this construction. They proved fairly successful on grading, but did not do very well on other parts of the work, and most of the other construction was done by day labor.

The Baguio line, now under construction, has three rack sections. It runs through a very mountainous country, and reaches an elevation of about 5,000 ft. When completed, it will furnish rail communication between Manila and Baguio. Baguio is in the high tablelands of Benquet, and is a cool, healthful resort, much frequented in the hot season from May to July. Benquet is also quite a mining country, with rail communication to the coast and this industry ought to make rapid advances.

The remainder of the main line south will, when completed, furnish an all-rail route from Manila to the great hemp producing regions of Albay, but it will have to compete with the present water route. The intervening country between Albay and Lucena is not developed, and will furnish little business. It looks as though the road will have to develop it and build up a local traffic. It may take years to do this, but eventually this whole section ought to pay as well as any of the lines.

Constructing a 13,000 yd. Fill on the Island of Cebu

The lines in operation have 20 locomotives, 47 passenger cars, 324 freight cars and 49 work cars per 100 miles.

THE PHILIPPINE RAILWAY COMPANY

The Philippine Railway Company was incorporated in 1906, under the laws of the state of Connecticut. It owns and operates 73 miles on the Island of Panay and 60 miles on the Island of Cebu. These lines have been built in accordance with the terms of the concession granted the original syndicate and later transferred to the company. In addition to the above, there was included in the original concession 22 miles of branch line on the Island of Panay, and 100 miles on the Island of Negros, also an optional branch line of 35 miles on the Island of Cebu. The construction of these various lines has been either abandoned, or indefinitely postponed with the consent of the government.

Under the terms of the concession granted this railway by the Philippine government, the interest on the 4 per cent. gold bonds is guaranteed for a period of 30 years. It fixes the tax rate at ½ per cent. of the gross receipts for a period of 30 years, and 1½ per cent. for 50 years thereafter. The company is allowed to issue bonds for 95 per cent. of the cost of construction.

On April 29, 1906, the first party of engineers, consisting of

50 men, sailed from Seattle to begin the surveys for this line. They arrived at Manila on June 10, and all were in the field by June 20. Surveys were begun on the Islands of Panay, Negros and Cebu at the same time. Practically all that was determined by the concession was the terminals of the different lines. There were very few maps available, and even these were very inaccurate. The locating engineers had to get for themselves a great deal of information that is generally derived from government maps, reports, etc., in a more civilized country.

As fast as possible the preliminary lines were run, and the final location determined, and run in on the ground, and sub-

A Bridge with Enlarged Foundations on Soft Mud Foundation

mitted to the government for approval. By November, 1906, enough of the line had been located on the Islands of Panay and Cebu, to begin construction, and the first sod was turned by Governor-General Smith at Cebu in November, 1906.

As finally located, the lines presented no remarkable engineering features, and involved fairly heavy construction for a new line in a new country. The standards of construction were fairly high, but met with the approval of the government. The lines were located and constructed with a view to getting as low a cost of maintenance and operation as possible. This increased the first cost considerably, and therefore the fixed charges. One of the determining factors was that there was no provision for a future increase of bonded indebtedness, and consequently it was necessary to get everything in under the original bonds or probably not at all. In consequence it was a very complete piece of construction, in fact much more complete than is the case with most roads in similar country.

The islands upon which these lines are located are a part of the Visayan group, and lie 300 to 500 miles south of Manila. The Island of Panay has an area of 4,611 square miles, and a population of 743,646. Tributary to the railroad is a population of 135,000, or 3,500 per mile, with a density of 198 per square mile. Iloilo is the southern terminus of the line of this large island. It is the great sugar port of the Philippines, and is a large commercial center. It has a population of 45,000. There is a protected roadstead, and the Iloilo river has been dredged to 24 ft. as far as the railway terminal.

The line runs from Iloilo in a northerly direction, through the central portion of the island, to the town of Capiz on the north shore. From Iloilo to Passi, the line traverses a wide alluvial plain. This is a rich country, and formerly all of the low lands were cultivated, but owing to the loss of work animals by an epidemic, only about 15 per cent. of the best land is being tilled at the present time. From Passi to Dumarao, the line passes over a range of hills which form the divide between the plain of South Panay and the North plain or valley of the Panay river. Very little of the country has been cultivated, but all admits of cultivation, and will be eventually.

In the valley of the Panay river are located the great rice fields. From Dumarao to Capiz, the line passes through this valley which is subject to heavy floods, and in order to keep the tracks above water, very heavy and expensive embankments were made. The whole construction from Passi to Capiz is heavy work both in bridging and grading. It was originally intended to build a line from Dao to Batan on the north coast of Panay, but it was indefinitely postponed, and will probably be abandoned.

The Island of Negros has an area of 4,481 square miles, and a population of 460,775, of which 249,000 are tributary to the projected railroad between Savaia and Cabancalan, or an average of 3,720 per mile of road with a density of 180 per square mile.

The general topography of the country consists of a heavy mountain range along the east coast and in the southern portion. This slopes down into a flat coastal plain on the west, which is the great sugar producing region of the Philippines. The proposed line runs through this section from north to south, and from one to twelve miles from the coast.

In all this part of Negros, there is no seaport, and the plans as finally worked out, provided a pier and breakwater protection at Bacolod with a water transportation line between this point and Iloilo, which lies 20 miles across the Guimaras straits.

A line was projected around the north coast of the island from Saravia to Escalente, but detailed surveys proved it to be too expensive, and the country so poor, that it was abandoned with the consent of the government. The line south has been indefinitely postponed, and while it may be built in the future, it will probably not be before the lines already built show better returns than at present.

This whole section of Negros is naturally very rich, and with modern methods of cultivation and manufacture, can produce as large a yield of sugar as anywhere in the world, but the sugar industry is fully 50 years behind the times. It is only very

A Maguay Stripping Machine Provided by the Railway to Clean Fibre for the Natives Without Charge

recently that a modern central was built at San Carlos on the east coast, while there is room for at least two on the west coast, but there must be a change in the methods of cultivation and that may mean years of education. There is no reason why this island should not be as rich in sugar as Hawaii or Cuba, and when this time comes, the proposed line, and many additional miles will be built.

Cebu is a long, narrow island, about 1,762 square miles in area, the center of which consists of a series of mountainous ridges skirted by a more or less flat coastal plain upon which the greater part of its people live. This coastal plain is highly cultivated as are many of the hills. The population is 592,000, or

about one-eleventh of the Philippine Archipelago. The population tributary to the railway is 309,500, or about 5,158 per mile of road. The density of population along the line of railway is about 515 per square mile. Cebu, the capital and principal city, is the oldest city in the islands, and is the great hemp shipping port of the southern group. Most of this hemp, however, does not originate on the Island of Cebu, but is brought from the neighboring islands for grading, baling and shipment to Europe and the United States. Cebu has a modern port recently built by the government. Steamers drawing 25 ft. of water can lie at this dock and discharge. The railway line connects with this dock.

The line on Cebu is located between Danao, 20 miles north of Cebu, and Argao, 40 miles south. It runs through the populous towns of the coast and along the rich coastal plain, which is from three to six miles wide. This plain is cut by numerous streams and ridges, and parts of the line required fairly heavy grading and bridging.

A line was located from Carcar, 23 miles south of Cebu, across the island to Barili on the west coast. This was an optional line under the concession, but was not built, and it will have to wait until the development of the country will show that such a line will pay.

CONSTRUCTION PROBLEMS

The labor question was the greatest problem that had to be solved in the construction of these lines. The problem of location and design of the various structures, while possessing many new and novel features, was one that admitted of fairly easy solution by the same methods that are used in this country. When a line of railroad is to be built in the United States, it is the general rule to prepare plans, estimates and specifications and then advertise for bids, and to finally contract for the work to be done by one or more contractors. These contractors have the necessary plant, superintendents, and experience gained by many years of similar work. Such a procedure was out of the question in the Philippines. There were no contractors, except a few small firms in Manila and some of the larger towns, and none of these firms possessed the plant, capital or men to undertake a contract of such magnitude. There was not a body of experienced construction men in the Islands from which to draw superintendents, foremen and mechanics. The company decided, that under these circumstances, the best results would be obtained by employing a responsible contracting company to take entire charge of all the engineering and construction work, thus placing all work under one head, and giving this company the greatest latitude in which to meet new conditions as they might arise. J. G. White & Co. of New York was therefore given the contract. This company had handled work all over the world, and had built the Manila Railroad & Light Company. In the construction of this electric line, they had done some very excellent work with native labor, and thus had some experience to help them in this new undertaking.

The organization was finally worked out with a vice-president and chief engineer of the railway company with headquarters at Manila; a chief engineer of J. G. White & Co., with headquarters at Iloilo, and division engineers at Cebu and Iloilo. The Philippine government was represented by the supervising railway expert, who had under him inspecting engineers at Iloilo and Cebu.

All plans had to be approved by the government and all work was subject to inspection. All accounts were audited and approved by the government. Preliminary bond issues were made for each 20 mile section of line opened for traffic, and final issue was made upon its completion and approval of the government.

The division engineers at Cebu and Iloilo had entire charge of all engineering, construction and operation, and reported to the chief engineer at Iloilo. The native workmen were paid daily by a pay check that was redeemable in cash by the company once a week. These checks soon passed as currency among the trades people along the line. The white foremen, mechanics and clerks were paid monthly.

At first a contract was made to feed all native laborers and also to run boarding houses for foremen, mechanics, etc., but this was found to be unsatisfactory in many ways, and was revoked. Native workmen were then fed only in out-of-the-way places, where it was impossible for them to secure food from a nearby settlement. The company furnished good, substantial board to its foremen for $25 per month. This board cost the company $30, but even at this loss, it paid to feed the men well, and keep them contented.

At Cebu and Iloilo, there was maintained a complete hospital, with doctors, nurses and all modern appliances, and at various times small temporary hospitals were maintained on the work as needed. The surgeons not only took care of the sick and injured, but made frequent inspections of all camps and quarters, and drew up rules and regulations for camp hygiene, which were strictly enforced.

When construction work was first started, there were very few natives on either island, who had ever seen a railroad, much less knew anything about the construction of one. There had been some little road building by the government, and J. G. White & Co. had a contract for certain port improvements at Iloilo and Cebu. This, however, was about all the construction

Typical Second Class Station at Sebonga Showing Passing Siding and Block Signal

work done, and from there a certain number of experienced native foremen could be obtained. For the greater part of the labor, it was necessary to depend upon the natives of the Southern Islands, while white superintendents and foremen were mostly picked up in Manila, and quite a number were sent out from New York. Most of the men picked up in the islands were a rough lot, including many ex-soldiers, but they generally spoke the native language, and understood how to handle the Filipino laborer and were acclimated.

The native laborers had to be taught everything, including how to handle a pick and shovel and to wheel a wheelbarrow, but they were willing as a rule and showed steady development. In this same way, gangs had to be taught track work, concrete work, steel erection, in fact, everything that had to be done in order to build a modern railroad. At first it was very discouraging, and unit costs were very high, even with 25 cents per day for labor. It required so much supervision which was expensive, and not very efficient. At the end of a year there was marked improvement, and as the force became more experienced and better organized, unit costs went lower and lower, until they compared favorably with similar work in the United States. Gradually the natives learned the work, and in time a number of native foremen were developed who replaced some of the lower grade of white foremen. Some few really first-class native foremen were developed by the close of the

construction period. At one time there were employed on the Cebu line about 5,000 natives and 250 white men. Fully as large a force was employed on the Panay line when the force was at its maximum.

MATERIALS

All materials, tools and supplies had to be shipped in, as the islands on which the lines were built furnished nothing but the gravel and sand used for ballast and concrete. Native hardwood ties were shipped from neighboring islands, mostly from Mindanao. These ties cost $1 each by the time they were in the track. Ties cut from first group timber are very durable and have a life of 25 or 30 years, but it is very difficult to distinguish the woods grown in the islands, and consequently, many inferior ties would get in, in spite of careful inspection. Many of

A Regular Passenger Train at Cebu Station

these ties would not last over a year or two. All ties had to be bored, as the wood was too hard to take a spike. Lumber was shipped from mills on the islands of Negros and Mindanao, and it was not very satisfactory for temporary construction purposes, such as trestles, forms, etc. All such lumber was manufactured from a native soft wood. It could not compare with Oregon fir for the same class of work, and a great deal of Oregon fir was shipped from the United States. The native hard woods were satisfactory but expensive for finish and car construction.

Gravel for ballast and concrete was obtained by dredging from stream beds. It was a good gravel, and made good ballast and concrete. Cement was obtained from the Green Island Cement Company, Hong Kong, China. Steel and concrete were used for all bridges and culverts. Reinforced concrete was used for all station buildings, roundhouses, train sheds, machine shops, storehouses, and, in fact, all building construction. An up-to-date, well equipped machine shop, with foundry, was built at Iloilo, and a smaller but complete shop was built at Cebu.

Seventy pound rail was laid at first, but most of the lines were laid with 60 lb. steel. Ample yard tracks and sidings were provided and turntables, water stations, roundhouses and train-sheds, were erected at all terminal points. At all order points standard train order two position signals operated by pipe connections from the station were provided. In fact, all the construction was planned to obtain as low a cost of operation and maintenance as possible. All structures were plain but permanent. The maximum grade was 1 per cent., except a short section of 1½ per cent. on the Panay line. The maximum curve of all lines was 6 deg.

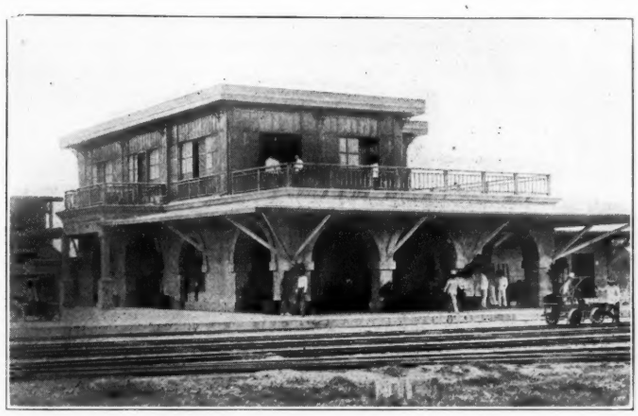
All the material, tools and equipment from the United States had to be ordered a year in advance of the needs. In consequence of this, a very large supply of everything needed had to be carried in the storehouses at Iloilo and Cebu. Even with the best of care and forethought, things were constantly needed that were not on hand and not to be had in the local markets. Such needs were largely supplied from the company's shops at Iloilo and Cebu. These shops were quite extensive during the construction period. And here everything from a locomotive to office furniture was built, including all the derricks, pile-drivers, gravel diggers, and many other necessary items of construction plant. All kinds of rolling stock was built with the exception of the running gear, which was sent from the United States. While supplying many pressing needs, the shops were at the same time training a force of Filipinos to do this necessary work when the lines went into commercial operation.

As fast as a 20-mile section was completed, it was put in operation, and so very early (September, 1907, on Cebu) it became necessary to organize an operating force. At first white engineers were brought from the United States, with whom were placed native firemen. At first all conductors and many brakemen were Americans, but soon all brakemen were replaced by natives. A trainmaster was in charge of all train movements, reporting to the division engineer. He had a white despatcher with a native assistant. From the first the telephone was used for the transmission of all orders. As fast as stations were opened for commercial traffic, station agents were installed, and trained by a traveling agent, who reported to the chief clerk Thus, during the progress of the construction work, there was being trained a force of natives that would be able to take over the work of operating the lines when the construction forces should leave.

OPERATING ORGANIZATION

As the track was laid, section gangs were put on under the charge of an experienced native foreman. These men worked under the direction of the general foreman of track, and had the advantage of a constant training for several years under good American track men. As the construction work drew to a close, many of the white engineers, foremen and mechanics had been replaced by natives, and the whole operating force was gradually brought down to as economical a basis as possible with safe and efficient operation.

The organization of the permanent operating force included the vice-president and chief engineer, who is the chief rep-



Passenger Station and Office Building at Cebu

resentative of the company in the islands, with an office in Manila, and the general superintendent in general charge of all operation, with office at Iloilo. Maintenance of way is in charge of an American roadmaster on each island, with Filipino section gangs of a foreman and two men to each five miles of track. Maintenance of equipment is under a master mechanic, with headquarters at Iloilo. A division foreman of machinery is in local charge at Cebu.

In the shops a few American foremen still remain, but most of the mechanics are Japanese, Chinese and Filipinos. The Filipinos are fast replacing the Japanese and Chinese. The enginemen are all Filipinos with an American traveling engineer in charge. Transportation is in charge of a superintendent on each island who is an American. Trainmen, agents, operators

and despatchers are all natives, and they are proving very efficient. Traffic is in charge of a traffic agent to whom the station agents report, as also do the Filipino traveling, freight and industrial agents. Clerical and accounting matters are under the auditor at Iloilo.

Great efforts are being made to build up agricultural production and to introduce new industries. The native traveling freight and industrial agents, under the direction of the traffic agent are all the time working with this object in view. The railway company has distributed some 4,500,000 Maguay plants in Cebu, which were furnished by the government. To encourage Maguay production, a fiber cleaning machine has been mounted on a flat car and is run to various points along the line where the fiber is cleaned for the natives without charge. Seed corn of a superior grade was purchased by the railway company in the United States, and distribution for the purpose of increasing the production per acre. High grade rice is imported and distributed to increase the production of this staple. Encouragement is being given to people to open up sugar plantations along the line in Panay. Through the native agents the people along the line are kept informed of the prices of their products, and markets are found for them if need be.

During the past few years the railway company has worked in conjunction with the government in helping the farmers grow their crops more scientifically. The railway maintains several experimental plants along its lines, and in this way instructs the farmer how to increase his production. The company also provides for a market bulletin which is placed at each station along its lines. In this way the farmer is in constant touch with the outside market. This innovation has brought good results.

Along these lines there are over 600,000 people, and thousands of acres of the richest agricultural land that is producing but a small part of its possible output. The people are very poor, have been very much oppressed, and afflicted in the past, and are but a few generations removed from savagery. At present they merely scratch a meager existence from the soil, but with the security and justice of a strong American administration, with the education that an excellent public school system is giving them, and with the civilizing factor of the modern railroad, they are improving from year to year. The time will come when they will be a much richer and more intelligent people than at present. One of the greatest factors that are helping toward that desired end, is the American railroad, and when that time comes it will reap its reward.

SOME VIEWS ON THE RATE CASE DECISION

President Ripley, of the Santa Fe, has written to the Traffic World a letter on the decision of the Interstate Commerce Commission in the Eastern rate advance case, in the course of which he says:

"It does not require 40 or 50 pages of printed matter to justify the trivial advance that is granted. Everybody who knows anything about it knows that the merchandise rates in central traffic territory are ridiculous, and that the requested 5 per cent is only a fraction of what the advance ought to be. It would not be difficult in that territory to pick out thousands of shipments the freight charges on which are not equal to the actual warehouse cost of loading and unloading, making no allowance either for hauling or interest on plant. The reasons for this are partly chargeable to the railroads, but largely also to the various 'regulatory' bodies.

"Nor did it require so much space to tell us that the passenger business is not profitable—we knew that already—but in fairness should it not also be stated that there has been a theory advanced by our rulers, and to some extent accepted, to the effect that the transportation of individuals freely and at minimum cost is a public necessity and a service which ought not to be expected to pay its full share of operating expenses? Our respected postmaster-general says that the United States mail is such an integral portion of the state, and of such necessity that it ought not to pay on the basis of other business, but so far as transportation is concerned, should be done at less profit than other business. The commission neglects to point out any way by which passenger rates may be advanced in view of the prevalence of statute rates in the states.

"The talk about various methods of saving in expenses is platitudinous but unconvincing to those of us who are 'in it.' If there is dishonesty in purchases or improper connection between business enterprises and railroad directorates it is just like any other kind of dishonesty, and should be punished accordingly, but it is not claimed that such charges are of general application—as a matter of fact, they can safely be denied as applying to any considerable number of carriers.

"As to free transportation, I have long been known as a radical, and, personally, I don't care how soon it is abolished, root and branch, but the figures given in the report as to the magnitude of the losses it causes are 'just piffle'; most of the deadhead mileage is that of employees on company business—much of the remainder is that of persons who in the absence of the free pass would not travel at all—and the amount of free transportation given to those who would otherwise pay fare is negligible.

"The whole document brings forcibly to my mind the saying of our old friend, Sancho Panza:

Whether the rock hit the pitcher or the pitcher hit the rock is all one to the pitcher.

"Here are a lot of railroads unable to live on present rates, to whom the relief is admittedly inadequate, and the commission, after 14 months and an expenditure of money totally out of proportion to the importance of the case, gives them a fraction of the fraction they asked for, accompanied by a sermon upon other and unrelated matters, which are either impossible of remedy or unimportant. Verily, 'the mountain has labored and brought forth a mouse.'"

The Chicago Herald of August 10 publishes a forcible interview with a Chicago business man whose name is withheld, but who is evidently somebody with a very full understanding of railway matters. As the interview evidently expresses the views of many business men it is well worth republishing despite the fact that the name of its author is withheld. The interview is as follows:

"Commissioner Daniels' views, coming as they do from the commissioner thought to represent most clearly the attitude of the administration, present one of the two rays of light from a thoroughly unsatisfactory decision. The other is the unqualified admission even by the majority that 'upon the facts set forth we are of the opinion that the net operating income and the net corporate income of the railroads in official classification territory, taken as a whole, are smaller than is demanded in the interests of both the general public and the railroads.'

"Greatest encouragement in Mr. Daniels' stand, which was supported by Commisioner McChord, lies in the fact that it may portend a change in the attitude of future commissioners, and that where need of greater revenue is shown the lawful regulators of railways will have the courage to mete out justice in higher rates instead of catering to supposed popular opinion by flat denial as in the past or by petty quibbling as in the present decision.

"If the public comprehended the evasive pettifogging by which the commerce commission avoided granting sorely needed relief to all the petitioning railways, forcing continuance of earnings which the commission itself pronounces against the best interest of public and railways alike, it would rise and demand a speedy change of attitude.

"One of the pieces of advice given the roads as to how they may increase the revenue denied them is to advance passenger rates, since passenger service has been proved to be highly unprofitable. 'Existing statutes in Ohio, Indiana, Illinois and Michigan,' says the commission, 'may be obstacles to the raising of passenger fares in those states. But we are confident that if these statutory fares are shown to be unduly burdensome to the

carriers the people of those great states will cheerfully acquiesce in reasonable increases.'

"Despite the visions of the water pitcher and flag-draped platform raised by 'the people of those great states,' we all know how cheerfully and promptly this relief will come. The roads have spent millions in all the two-cent states in vain proof that the rate is unprofitable. Commissioner Daniels hits the nail on the head by declaring 'the suggestion that they should add to their revenues by advancing their passenger rates is of little force in view of the fact that they are powerless to adopt it.'

"Other recommendations by the commission are as visionary. Time after time it commends the roads for steadily advancing efficiency, for the 'advance in the art of railroading,' for the 'ability of operating officials' in keeping down operating ratios in the face of great odds and concludes by saying, 'We may justly feel proud of the development of our transportation system.' Yet it tells the roads to go out and get their needed revenue by 'the introduction of additional economies in operation and further advances in efficiency.'

"It reproves the roads for spending $4,000,000 in the solicitation of freight and passenger traffic in one year, telling them to cut expenses there. In other words, the commission's preposterous remedy is 'If your business is not paying call in your salesmen and stop seeking it!' Why didn't the commission go to the heart of the problem and recommend the advisability of allowing pooling, such as has been adopted in England?

"In demanding that revenues be increased by abolition of various free services which have grown up with commerce, the commission is trying to lift itself by its own bootstraps, thinking to secure revenue but save the public from contributing it. With industry paying for these services, provided the proposed charges for them withstand the onslaught of state commissions, costs of production must be raised and the consumer must pay in the end as surely as if the added cost were in higher freight rates, while established industry must be seriously disturbed in the bargain.

"The roads are told to expedite freight and relieve terminals by establishing schedules for freight trains, yet I believe any railroad man will tell you that any attempt at schedules for freight trains destroys possibilities for the great economies won by heavy train loads. In other words, to get maximum use of motive power the train must move when tonnage is there. Average movement and loading of cars should be increased, says the decision, but we all know the shipper himself in holding the car at each end of the journey and in his partial loading of the car is one of the greatest factors in cutting car efficiency. The roads have tried often in vain to secure higher minimum car loads, shorter free time or more stringent demurrage charges.

"As to mail pay, in which the official figures show a deficiency, the commission makes no recommendation, as 'it may be assumed that if the compensation for the service is found to be unjust to the carriers relief will promptly be afforded.' Apropos of this the Bourne Senate committee has recommended an increase in mail pay for the railroads, and the railroads are working might and main to starve off an actual cut in pay provided by the Moon bill.

"There are many other suggestions as to how to run the railroads on less money. But the Interstate Commerce Commission, created to secure equality and justice between carriers and the public in rates and practices, steps beyond its proper field when it aspires to tell the operating officials of railroads how to run their own business. Swamped with other duties, this ambitious board would teach the managers of 250,000 miles of railway how to operate their trains. Yet not one has ever sat in an official chair, not one has been asked to accept the presidency of a railroad, and only one, I believe, as brakeman and conductor, has ever worked for a railroad.

"Commissioner Daniels presents hope for relief for this condition when he says: 'This commission is not constituted by law a board of general managers of the railroads of the country, and the assumption of tendering suggestions as to management ought never to delay or postpone the settlement of a plain matter of law and fact involved in an application for advanced rates.'"

George A. Post, president of the Railway Business Association, has issued a statement discussing the decision, in which he says:

"Disappointment over the denial by the Interstate Commerce Commission of rate advances to the Eastern Trunk Lines in the face of the finding that they need more income, is softened somewhat by the temperate tone of the decision and by several important steps forward which are taken by the commission in attitude towards the carriers."

Continuing, Mr. Post makes eight points regarding the opinion, of which the following is a summary:

1. Railway managers are frankly acknowledged to have shown sound judgment when they gave warning in 1908-1910 of an impending decline in net income.

2. Railway income in official classification territory is definitely pronounced too low.

3. Jurisdiction and obligation to consider railway earnings, income and credit in regulating rates are explicitly assumed by the commission.

4. To permit suitable rewards for foresight in promotion and efficiency in management is unreservedly declared wise public policy.

5. Roads of a region are granted advances notwithstanding that some of them have been criticized for their conduct.

6. Increase of passenger rates, very difficult to effect in the past, obtains the prestige of federal approval.

7. Necessity for proceeding to the immediate solution of income problems without waiting for collateral inquiries is recognized.

8. Clear and definite standards are set up by which carriers may hereafter gage their financial condition and determine whether the showing will be regarded by the commission as requiring remedies from that body.

The banking house of Thompson, Towle & Company has made the following estimates as to the amount of direct benefit which will be derived by various roads from the decision:

	Estimated benefits from rate increase based on 1913 fiscal year freight revenue (000 omitted)	Per cent increase	Earnings on common or capital stk., year ended June 30, 1913	Increase earnings per share stock
Ann Arbor R. R.	$45	3.23	¶3.38	¶1.12
†Baltimore & Ohio	1,085	1.55	7.25	0.71
Bessemer & Lake Erie	75	0.88	453.6	15.0
§Central Indiana Ry	5	2.87	def.	.....
†*Chesapeake & Ohio	67	0.24	5.25	0.11
†Chicago & Alton	198	2.00	def.	.....
Chicago & Eastern Illinois	357	3.00	def.	.....
Chicago & Erie R. R.	132	3.13	def.	.....
‡Chicago, Indiana & Southern	124	2.94	¶3.56	0.68
Chicago, Indiana & Louisville	193	4.11	3.20	1.84
Chicago, Terre Haute & S. E.	40	2.38	.....	.....
Cincinnati, Hamilton & Dayton	238	3.22	def.	.....
‡Cincinnati North. R.	32	2.80	1.23	1.07
‡Cleve., Cin., Chicago & St. L.	844	3.65	0.75	1.79
Detroit & Mackinac	34	4.01	9.71	1.70
Detroit, Toledo & Ironton	20	1.50	def.	.....
Elgin, Joliet & Eastern	316	2.55	25.0	3.16
†Erie R. R.	435	0.98	4.26	0.39
§Grand Rapids & Indiana	113	3.45	2.88	1.95
Grand Trunk Western	206	4.31	def.	2.92
Hocking Valley Ry	70	1.10	17.4	0.64
†Illinois Central R. R.	845	2.0	6.02	0.77
†Kanawha & Michigan	15	0.52	11.17	0.17
‡Lake Erie & Western	194	4.00	¶1.7	¶1.64
‡Lake Shore & Michigan So.	1,214	3.08	34.9	2.45
‡Michigan Central	936	3.05	17.6	5.00
‡N. Y., C. & St. L.	427	4.01	5.3	3.05
§Pennsylvania Company	1,121	2.21	13.1	1.41
Peoria & Eastern	96	3.67	def.	0.29
Pere Marquette	468	3.99	def.	.....
§Pittsburgh, Cincinnati & St. L.	1,034	3.29	3.66	2.78
‡Pittsburgh & Lake Erie	315	1.79	27.1	1.05
‡Toledo & Ohio Central	53	1.12	13.1	0.91
Toledo, Peoria & Western	24	2.92	0.9	0.59
Toledo, St. Louis & Western	138	3.71	¶0.86	¶1.38
§Vandalia R. R.	162	2.10	5.30	1.18
Wabash R. R.	751	3.45	.....	.....
Wheeling & Lake Erie	111	1.64	.....	.....

¶Preferred stock.
†Part of mileage only in C. F. A. territory.
*Based on report of Chesapeake & Ohio of Indiana for 1911 fiscal year.
§Pennsylvania Lines West.
‡New York Central Lines.

"SEE AMERICA FIRST"—A LESSON OF THE WAR*

BY JAMES KEELEY,
Editor of the Chicago Herald.

For days every paper has been filled with stories of American citizens stranded in Europe. The Herald has printed literally yards of such narratives, so there is no need for me to go into detail. What I want to do is to point the moral and the way to keep in America at least some part of the $200,000,000 that is spent yearly by those who go to foreign shores.

In the last few years the slogan "See America First" has been used by foresighted advertising men and railroads, and I think the results have been excellent. Gentlemen, this European cataclysm gives America a chance to cash in on the pioneer work of those who first proclaimed the sanity and sense of investigating the beauties and wonders of our own country. It is a fair estimate that of the 100,000 touring Americans now marooned in Europe, not a tenth have seen all the worth-while sights of their own country.

A trip to Europe in time of peace is undoubtedly enjoyable, but there are just as enjoyable trips in America. There are things in Europe well worth seeing, but there are as many things worth seeing in America. A vacation spent in America means that the tourist is close to home, that he may reach his fireside in a short time in case of necessity. Wars, it is true, do not happen every day, but they may happen, and they have always been more probable in Europe. There are other things besides wars which may make a quick return home desirable. A quick return from Europe, even in time of peace, is not always possible. Transatlantic steamer accommodations are limited—our railroad accommodations are practically unlimited.

Americans of means are not to be discouraged from seeing the world. It is a liberal education. But the foundation of such an education should be a personal acquaintance with their own country which too often is lacking.

In seeing America there is hardly any conceivable catastrophe that could produce a despatch similar to the one in the papers of yesterday, which told of two cattle trains filled with American tourists fleeing from the French capital to a seaport, with the forlorn hope that they might somehow or other get a chance to look the Goddess of Liberty in the eye.

Many a man counted himself fortunate if he had a little bit of straw to rest on, while, so the narrative runs, millionaires and their families seemed supremely happy if they could preempt a few square inches of a hard wooden bench on which to sit. Imagine, if you can, these foreign travel fiends carrying their belongings wrapped in sheets and pillow cases, and also picture to yourselves the globe trotter wearing two suits of clothes at one and the same time, not to keep him warm, but in order to have a change and incidentally, in order to save what personal property he could. You've never heard of cattle trains in the Grand Canyon country, in Yellowstone Park, in the Glacier National Park, in California, in the Rockies, in Florida, and you never will.

Haven't you advertising gentlemen a mission to drive home the fact, and isn't this the psychological time to drive the fact home that America is well worth seeing—that its beauties equal those of any spot on the face of the earth; that its natural wonders are not surpassed by those of any land on any continent? Millions and millions of dollars have been spent every year by those who felt that they were not fashionable unless they took a trip to Europe. The Europeans get us coming, going, and there. They get the greater per cent of the money for going and coming, and you know that they don't overlook an opportunity to get whatever they can while you're there.

Once upon a time there was a First ward gentleman—in politics—and he was connected with the coroner's office. He was known among his intimates as "First Search"—that is, he had the right and prerogative of making the initial examination of the clothes of unfortunates who were murdered, who committed suicide, or who met sudden death in any form. It seems to me that the average European who caters to tourists not only should be called "First Search," but "Last Search." It is of record, or, at least, there is a tradition that once in a while "First Search" overlooked something, but I know of no authenticated instance where a foreign hotelkeeper or shopkeeper committed such a faux pas.

*Extract from an address to the Chicago Advertising Association, Chicago, August 7.

AMERICAN ROADS EARN LESS ON NEW CAPITAL THAN FOREIGN ROADS

The Bureau of Railway News and Statistics has issued the following:

"Although railroads of the United States added a far smaller amount to capital per mile between 1910 and 1912 than any of the three principal railroad countries of Europe, so great was the burden of increased expenses on revenues that they totally failed to keep abreast of the foreign systems in return on the investment. This is in spite of the fact that our own railways made by far the largest increase, both actual and relative, in operated mileage.

"In the two years ended with 1912, for which comparisons for all four countries are now possible, United States railways added 3.7 per cent. to mileage on an addition of 5.2 per cent. to capital. In contrast with this showing, Germany's government roads added 6.4 per cent. to capital to make an addition of only 2.5 per cent. to mileage, while France, to expand by but 0.9 per cent. in mileage, added 4.5 per cent. to capital, and England, adding only 0.4 per cent. to mileage, expanded capital 1.5 per cent.

"The effect of this economical outlay of new capital on American roads is shown partly in the per mile comparisons. United States railways in 1912 were capitalized only 1.4 per cent. higher per mile than in 1910, while German roads were 3.9 per cent. higher and French railways were 3.4 per cent. higher. Though English roads show a smaller relative increase per mile than our own, this is because their capital per mile already is so excessively high, their 1.1 per cent. representing more than three times our own 1.4 per cent. in actual figures.

"It is in the absolute increase of capital per mile, however, that the moderation of American capitalization becomes most apparent, for while the United States in the two years was adding a paltry $878 per mile, England was adding $2,784, Germany $4,245 and France almost $4,500 per mile.

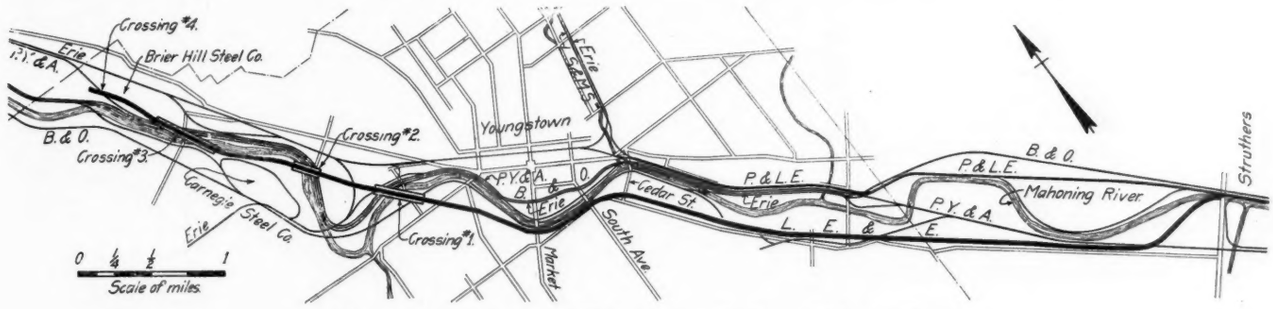
"Yet with all the advantage of moderate capitalization United States railways were so pressed between the millstones of sluggish revenue and rising expenses (spending 8.2 per cent. more to do 3.3 per cent. more business) that the ratio of net to investment was 10.8 per cent. smaller in 1912 than in 1910 (while with taxes included the loss is 12.5 per cent.). Germany, despite its excessive capital expenditure aided by gigantic increases in traffic, and rates rigidly maintained in the face of public demands for reductions, displayed a ratio of income to capital 10.3 per cent. larger in 1912 than in 1910. England's ratio fell 1.1 per cent., while that for France declined 3.7 per cent."

ABYSSINIAN RAILWAY—It is expected that the Abyssinian Railway will reach the capital of Addis Abeba in February of next year. It is reported that the railway has already been completed to kilometer 312 (reckoned from Diredana) and kilometer 621 from Djibuti. But, as there is a scarcity of camels for the transport of materials from the terminus to the site of construction, the work is frequently interrupted, particularly in the mountainous district, where many bridges have to be erected and cuts made. Nevertheless, the section to the Modjo river, which is 73 kilometers from Addis Abeba, will presumably be finished next November, and as the roadbed from Modjo to Addis Abeba is now nearing completion, the first train is expected in the latter place at the beginning of February.

Building a Modern Terminal Road at Youngstown, Ohio

The Lake Erie & Eastern Is Completing a New Line 8 3-4 Miles Long Involving Very Heavy Work

The Lake Erie & Eastern, which is owned jointly by the Pittsburgh & Lake Erie and the Lake Shore & Michigan Southern is building a new line nearly 8¾ miles long from Struthers, Ohio, about 4½ miles south of Youngstown, on the main line of the P. & L. E., northwesterly through the city of Youngstown, following the Mahoning river, to a connection with the Pennsylvania lines at Girard. In order to secure the desired location for this line it was necessary to purchase considerable right of way in well developed residential and industrial sections of the city, to separate grades at all crossings of streets and satisfy all public and private claims resulting from the work, to handle a large amount of excavation and embankment under difficult circumstances, and to build three long structures crossing the Mahoning river and three railways.



Map of the Lake Erie & Eastern from Struthers, Ohio, to Girard

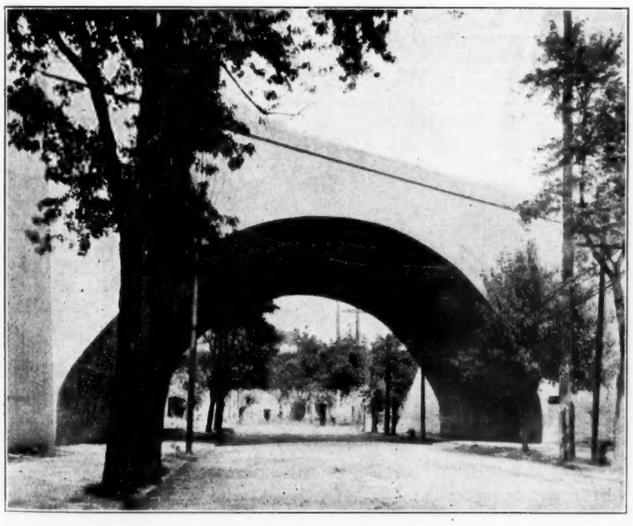
GENERAL

The immediate advantage which will result upon the completion of the section now under construction will be to reach a number of important industries now operating along the river and the sites of prospective industries which may be developed in this district. The largest industries on the new line are the Republic Iron & Steel Company, the Carnegie Steel Company and the Brier Hill Steel Company.

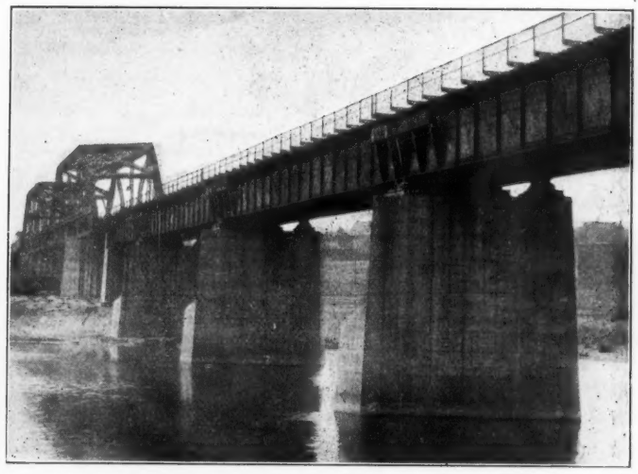
The second and more remote advantage of the line is that it can be made to form a part of a proposed direct freight connection to be controlled by the New York Central Lines between Youngstown and Cleveland. The northern section of this line, known as the Lake Erie & Pittsburgh, extending from the outskirts of Cleveland to Brady's Lake Junction, about 28 miles, has been in operation since the latter part of 1911. It was built as a joint enterprise of the Lake Shore and the Pennsylvania, although the latter has not availed itself of its privilege of operating over it. Through freight between western points and Youngstown is now handled by the New York Central system over the L. E. & P. between Cleveland and Brady's Lake Junction, thence on the Pennsylvania to Ravenna and on the B. & O. from Ravenna to Youngstown. It is the intention ultimately to connect the southern end of the L. E. & P. with the present northern terminal of the L. E. & E., which will require the construction of nearly 40 miles of road. This line may handle freight traffic only in view of the present satisfactory operating agreement with the Erie, which covers the New York Central Lines' passenger service between Youngstown and Cleveland. The new L. E. & E., as constructed at present, will serve as the terminal and transfer line of the New York Central Lines in the Youngstown district.

The new road has a maximum grade of 0.3 per cent. in both directions, which will also be the standard on the proposed line to the west. The line will ultimately have four tracks, and all masonry structures are being built to carry a four-track roadway. Provision is being made in many cases in the foundations of the steel structures, which are being built for only two tracks, to widen them to carry four tracks as soon as this is desirable.

Exclusive of the crossing of the Mahoning river at Struthers,

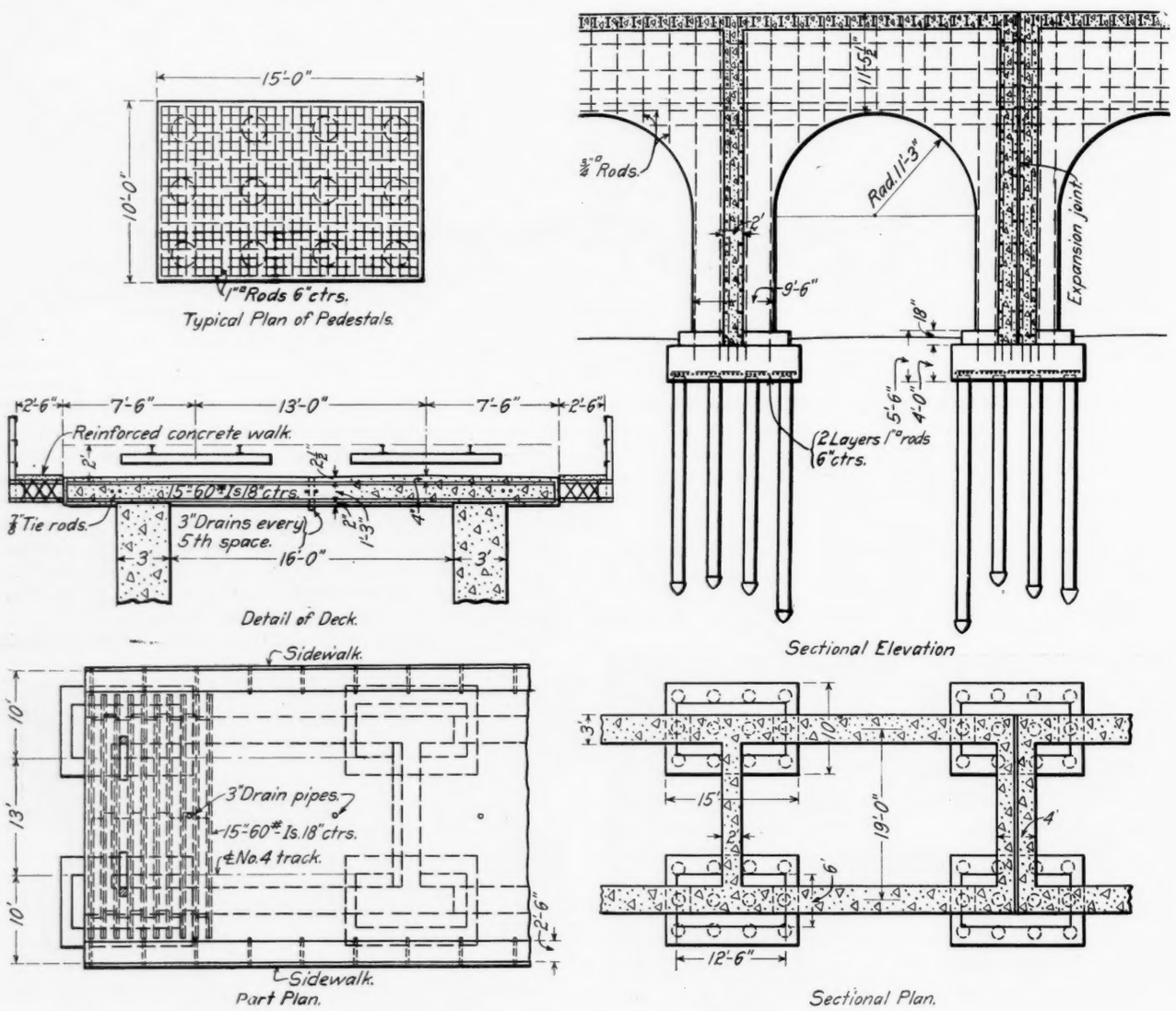


One of the Typical Concrete Arch Bridges Over Streets



The River and Heavy Truss Spans of Crossing No. 1

immediately adjacent to the main line connection, all of the important bridges on the new line are located on the north half of the work, beginning with the Cedar street concrete arch subway. Six other subways of this type and one steel girder under-crossing were required at various points along the line, and two streets and one footway are carried over the new tracks. Three large bridges, known as Crossings Nos. 1, 2 and 3, are required to span the Mahoning river and the tracks of the B. & O., the Erie and the Pennsylvania which parallel the river around two long bends. The last structure, known as Crossing No. 4, spans four tracks of the Pennsylvania and one track connecting the L. E. & E. with the Brier Hill Steel Company's yard. All bridges were designed for Coopers E-60 loading and the New York Central Lines' 1910 specifications for steel railroad bridges were used. The work involved the placing of about 80,000 cu. yd. of concrete masonry and between 8,000 and 9,000 tons of steel.



Details of the Reinforced Concrete Trestle Used in Crossings No. 1 and No. 3

STREET BRIDGES AND CROSSING NO. 1

Taking up the structures in the order named above, the first is the group of seven four-track concrete arch subways, all located south of Crossing No. 1. The spans vary from 18 ft. to 85 ft. 6 in. All of the arches are heavily reinforced, and as most of the streets are crossed at a skew, the rings were placed in sections to insure the loads being transmitted to the abutments along lines parallel to the track, preventing undue overloading on any sections of the barrel. The contractor used steel centers in placing all of these arches.

In the section between Cedar street and Crossing No. 1, two old street bridges carrying South avenue and Market street, respectively, over the river are to be remodeled slightly in order to provide clearances for the new line under the approaches on the west bank. In the case of the Market street bridge, new girders will be clamped alongside the old approach trusses and supported on new piers adjacent to the new tracks in order to allow enough of the lower members of the old trusses to be cut out to provide the necessary clearance.

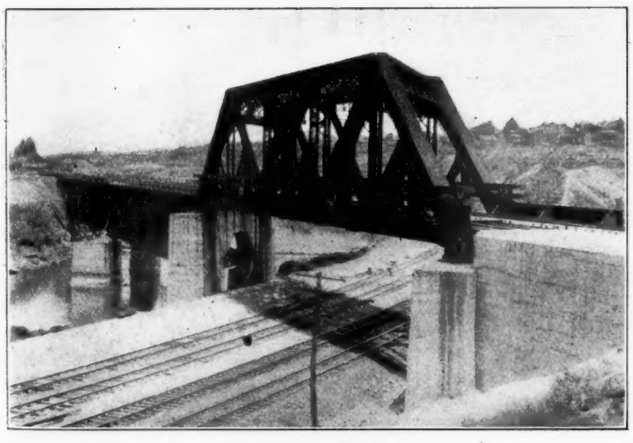
Crossing No. 1, built for double track, the longest bridge on the line, has a total length of 1,926 ft., comprising 106 ft. of reinforced concrete viaduct, three through-girder spans over the main line of the Baltimore & Ohio, 317 ft. of concrete viaduct, a three-span, deck girder crossing of a highway, eight deck girder spans crossing the river, and two through-truss spans, each 192 ft. long, over the tracks of the B. & O., the Erie and the Pennsylvania. The material near the surface north of the river consisted of cinder fill, mud, sand and gravel, requiring the use of piles under practically all foundations south of the river piers and on one pier north of the river. The river piers are founded on shale rock.

Simplex concrete piles, from 19 ft. to 25 ft. in length, were

used in these footings, this type of pile being chosen on account of the larger bearing surface provided by the enlarged point as compared with designs in which the entire shaft is tapered. Since the conditions were such that the piles had to be driven through soft material to gravel, the whole area of the Simplex pile is made available for carrying load, while a tapering pile would have little frictional resistance in the soft overlying strata and would have to depend for its bearing power largely on the area of its point, which is much less than the Simplex

A Portion of the Concrete Trestle in Crossing No. 1. Concrete Deck Slab Has Not Yet Been Placed

point. The footing designs contemplated the use of 16-in. Simplex piles, capable of sustaining safely a load of 40 tons each. It was specified for this work that all casings must be driven before any piles were cast. The difficulty of handling the work by this method led the contractor to offer to substitute an inserted octagonal pre-molded pile in the 16-in. casings to prevent damage from driving of other casings, the surrounding space between the inserted pile and the cases being filled with grout. This proposition was accepted, as it resulted in piles

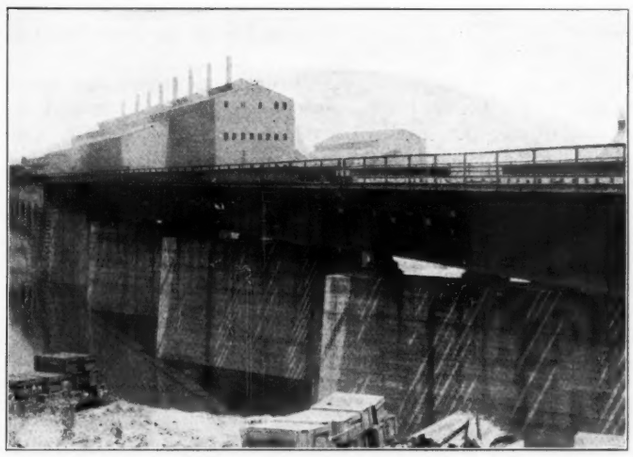


Crossing No. 2

capable of carrying 50 tons safely at no greater cost per ton carried. A test pile showed its ability to carry considerably more than the assumed load without damage.

All of the steel superstructure is of heavy rigid construction. The floor beams in the through-girder spans are 30-in., 200-lb. Bethlehem I-beams, spaced 4 ft. center to center, with a longitudinal center distributing girder, 12-in., 55-lb., I-beam stringers under the rails and six 12-in., 21½-lb. I-beam stiffeners in addition to the stringers between each pair of floor beams. Lateral bracing is provided by double diagonals under the floor beams, which are riveted to gusset plates under the main girders and the center distributing girder, and are attached by clips to the under side of one of the floor beams near the center of the length of each lateral. The floor on the deck girder spans consists of transverse I-beams encased in concrete, the same as on the concrete viaduct, which will be explained in more detail in that connection.

The concrete viaduct is carried on bents spaced 32 ft. center to center. A typical bent consists of two reinforced concrete columns 9 ft. 6 in. by 3 ft., connected by a 2-ft. concrete web wall, resting on two pedestals 10 ft. by 15 ft. in area, covering the heads of 12 concrete piles and reinforced over the heads of the piles by two layers of one-inch rods spaced 6 in. center to center. The distance between the inner faces of the columns is 16 ft. Longitudinal girders of reinforced concrete, 3 ft. thick and varying in depth to form a semi-circular arch of 11 ft. 3 in. radius, connect these columns. All reinforcement above the foundation consists of ¾-in. square rods. Across these walls are laid 15-in. 60-lb. I-beams, spaced 18 in. center to center, connected by ⅞-in. tie rods to distribute the load and increase the stiffness. These beams are encased in concrete with a minimum depth of 1 ft. 7½ in. The thickness of concrete over the I-beams is increased 1½ in. along the center line of each track for drainage, a 3-in. drain pipe being provided midway between tracks in every fifth space between I-beams. The design of the deck provides for about 6½ in. of ballast under the tie.



A Portion of Crossing No. 3

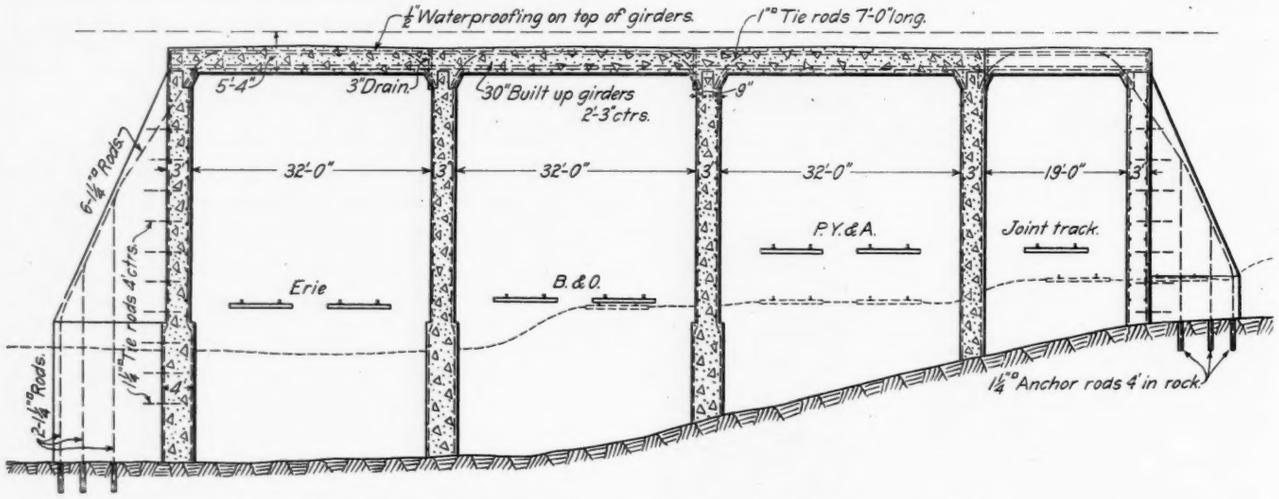
A light latticed girder is attached to the end of every fifth I-beam to support a reinforced concrete walk along each side of the structure. This walk is protected by a hand-rail built up of vertical angle posts with three angle rails. Expansion joints filled with heavy roofing felt are provided in the viaduct over every third bent. In order to protect the expansion joint from the ballast, steel cover plates are used, resting on the upper surface of the concrete. As it is impossible to connect the two I-beams on opposite sides of an expansion joint with the usual tie rods, two channels placed back to back are substituted for the I-beams at these points in order to strengthen and stiffen the floor. Asphalt waterproofing is used on the deck.

OTHER BRIDGES

The under-crossing at Manning avenue, just north of Crossing No. 1, is a single span through-plate girder structure, with a solid deck of transverse I-beams encased in concrete. The overhead foot bridge and the two overhead street bridges between Crossing No. 1 and No. 2 are of steel girder construction, designed to span four tracks. The street bridges have solid concrete decks carrying the paving, and the street approaches are on a grade of 6 to 7 per cent.

Crossing No. 2 is built for double track and consists of three

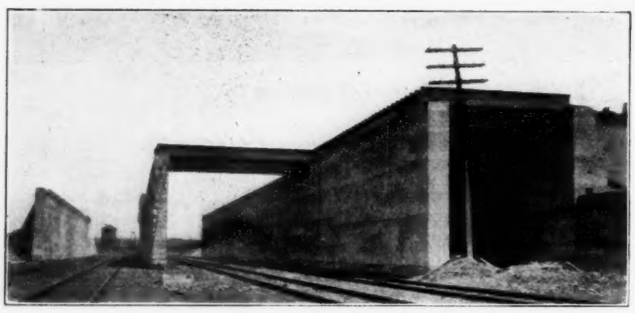
spans, one a 165-ft. double-track, through-riveted truss, over the B. & O., the Erie and the Pennsylvania, and two 175-ft. trusses over the river. The south abutment has its foundation in gravel, the two piers are carried to shale rock, and the north abutment footing is in slag. A maximum bearing pressure of four tons per sq. ft. was used in the design of these footings. The heavy loading used in the design of the trusses requires heavy sections for all members, a rigid structure being secured cased in concrete. On account of the flat angle of the crossing and the provision for a four-track roadway over the structure, the walls are very long, the combined lengths totaling 2,270 ft. The entire wall, which is 3 ft. thick, is carried down to rock where it is near the surface, and in places where this would have required an excessive amount of masonry, pedestals 4 ft. by 12 ft. were used to support the wall at intervals varying from 21 ft. 9 in. to 27 ft. center to center. Expansion joints



Cross-section of the Skew Structure at the North End of Crossing No. 3

by inserting sub-diagonals and verticals to reduce the panel length. Two heavy fender girders are provided along both trusses to take the shock of a derailed car or locomotive and to reduce the damage to the truss members. Blast plates are attached under the lower chords over the center line of each of the tracks on the lower level and under all transverse members and portal bracing over the tracks across the bridge. The bearings are raised higher than usual and ample room is provided on all sides of the grillages and roller nests for inspection.

Crossing No. 3 has a total length of about 1,635 ft., consisting of six 90-ft. deck girder spans over the river, 195 ft. of concrete viaduct, one 80-ft. deck girder span over a skewed



Crossing No. 4 With a Portion of the Deck Laid

street, 67 ft. of concrete viaduct and 758 ft. of a special type of reinforced concrete structure, designed to carry four tracks over the seven tracks of the Erie, the B. & O. and the Pennsylvania. This portion of the structure is one of the most interesting features of the entire work.

All foundations under this bridge are carried to rock, which is from 15 ft. to 20 ft. below the surface. The sections of concrete viaduct are of practically the same design as those described above. The special design at the north end was necessitated by the fact that the new line crosses the old tracks at an angle little more than 14 deg. The structure consists of thin reinforced concrete walls between each pair of tracks on the lower level supporting a solid deck of transverse I-beams en-

are spaced from 50 to 65 ft. apart. The exterior walls on both sides are buttressed in order to give lateral stability to the deck, these buttresses being placed about 65 ft. center to center. These buttresses are 3 ft. 6 in. thick and extend back a distance of 18 ft. from the inner face of the wall. The deck consists of 30-in. built-up girders, laid at right angles to the walls and spaced 2 ft. 3 in. center to center. These beams are con-

A Retaining Wall Built of Large Pieces of Open Hearth Slag Called "Ciscos"

tinuous, requiring reinforcement at the points of contra-flexure. A ½-in. layer of waterproofing was placed over the tops of the beams and a minimum thickness of 4 in. of concrete over the waterproofing. The surface of the concrete was crowned to 6 in. over the center line of each bay for drainage. The concrete encasing the girders was tied in to the concrete walls by thick key walls at the top of each supporting wall and by 7-ft. tie rods

extending up from the walls into the deck slabs. Provision is made for 10 in. of ballast under the ties.

Crossing No. 4 carries the four new tracks over four tracks of the Pennsylvania, and one L. E. & E. connecting track with the Brier Hill Steel Company, the structure being of the same type as the north end of Crossing No. 3, just described.

An interesting experiment is being tried in the painting of the steel superstructures of these bridges, which, it is hoped, will give better satisfaction than the usual practice. In order to eliminate the rolling scale, which is so frequently the cause of defects which develop after the bridge is painted, starting serious corrosion, no shop coat of paint was applied, and the fabricated material was allowed to stand without paint until after its erection, the total time since rolling amounting to nearly two years in some cases. The surface rusting which resulted has loosened the rolling scale so that it can now be scratched off very readily. The bridges after being completely erected are now being cleaned with chisels and wire brushes and dusted with large paint brushes before applying two coats of paint. It is the expectation to allow them to stand two years or more after this painting and then spot paint any defects that have developed before applying the third coat. In order to secure the best co-operation of paint manufacturers, the large structures have been divided into ten sections, each of which is assigned to a company which has previously demonstrated that its product and the method of application which it recommends

General View of the Side Hill Excavation Above the B. & O. Tracks

can be relied upon to give reasonably good satisfaction. The wishes of each manufacturer in the method of applying his paint are followed as closely as possible in order to give a good comparison of the merits of the various paints, in addition to testing the advantage of painting on the metal instead of on the scale.

GRADING

The excavation quantities on the new line total about 900,000 cu. yd., all of which is used in embankment, and, in addition to this, about 250,000 cu. yd. of slag and refuse is being disposed of in the fills. In common with other roads serving the steel mills, the P. & L. E. has large amounts of mill refuse to handle and the excess of embankment over excavation was in reality an advantage. In some places the excavation was used to make a narrow fill in order to lay a construction track from which slag could be dumped. The width of fill varies considerably, although it is never less than the standard two-track width. In many places it is wide enough for four tracks, and in some cases has been extended over all available land in order to dispose of refuse material. The side hill cut, north of the South avenue bridge, required very careful handling in order to prevent the blocking of traffic on the B. & O., which occupies a lower bench between the new line and the river. A short section of reinforced concrete retaining wall was built at the end of this cut to retain the new fill above the B. & O.

Opposite the works of the Carnegie Steel Company, between Crossings No. 2 and No. 3, a heavy fill was made along the river with a width sufficient to carry six tracks. A retaining wall was built along the river bank of large regular pieces of refuse from the mills known as "ciscos." These pieces are formed of refuse from open hearth furnaces, which is allowed to cool in molds to make it easy to handle. The wall was built up with a 1:4 batter by a locomotive crane, and hot slag was then dumped behind the wall, filling the crevices between the ciscos and solidifying it into a hard mass. The hot slag fill was carried up to 4 ft. below subgrade, the surface layer being made with granulated slag to serve as a cushion under the track.

The general contract for all work south of Cedar street was let to H. T. & R. L. Culbertson, Cleveland, Ohio. McKelvey-Hine, Pittsburgh, Pa., was the contractor on the section extending from Cedar street to the south end of Crossing No. 1, and also for Crossing No. 4. The Duquesne Contracting Company, Pittsburgh, had the contract for the section between the south end of Crossing No. 1 and the north end of Crossing No. 3. The McClintic-Marshall Construction Company, Pittsburgh, fabricated and erected the superstructures of all steel bridges. Albert Lucius, New York, is the designing and consulting bridge engineer. This work is being carried out under the direction of J. A. Atwood, chief engineer of the Pittsburgh & Lake Erie; A. R. Raymer, assistant chief engineer, and F. J. Nannah, assistant engineer in direct charge of the work. The work was started in May, 1912, and at times the progress has necessarily been slow on account of the delays incident to building through a well-developed section of the city. It is expected, however, that the line will be ready for service this fall.

ADJUSTING PERSONAL INJURY CLAIMS*

BY H. B. HULL
Chief Claim Agent, Illinois Central.

I know but one rule that may be safely followed in the adjustment of personal injury claims, that negotiations should be conducted upon the high plane of openness and fairness. In adjusting a claim, it is of paramount importance that every word and act of the claim agent's should be such as to withstand at any time the closest scrutiny under the light of day. A railroad company, with its property constantly exposed and subject to attack, must for its protection and defense rely upon its own reputation for fair dealing with its employees, patrons and the public. The deportment of its claim agents, who are constantly in touch with the public, has much to do with placing the reputation of a railway company. If they go about their work inspired by high and honorable resolutions, their efforts will not only be rewarded as they go along, but will assist most materially in establishing for their company a good name, which is the most valuable asset a railway company can have and which, when once enthroned, is as immutable as virtue and truth.

Assume, for instance, that you have a seriously injured person at some hamlet upon your line, far removed from the influences which are always antagonistic to the company in the handling of its claims, and that he is unadvised of his rights and imbued with an abiding faith in the fairness of the company and willing to trust his case in the hands of the claim agent, and that you have it in your power to go to that man and conclude him in an inadequate settlement, and thus save your company a substantial sum of money in that particular case. I affirm that it would not only be unconscionable to overreach that claimant, but that it would also be unprofitable to your company. The dust of the community would scarcely be off your feet till the doctor, the banker and the prominent citizen would get together on the street corner and discuss the result of your visit and the entire community would soon be condemning your railroad, and properly so. Almost in the twinkling of an eye you had encompassed enough to cause your company to be hated and despised in the community where the settlement was made, and to render it certain no more settlements could be made there. A corporation

*Address at the twenty-fifth annual convention of the National Association of Railway Claim Agents, St. Paul, Minn., May 21, 1914.

can only act through its agents, and unless their acts are scrupulously correct it deserves to be condemned.

Contrast the situation which I have attempted to describe with what might have happened had you gone to the injured man in a kindly way and explained that you were representing the railroad and that if he were uncertain as to his rights, that he had best call in two or three of his friends upon whom he would ordinarily rely for advice in a business transaction, and ask them to assist him in arriving at a conclusion as to what would be a proper sum for him to accept in compromise of his claim. In my humble opinion, the railroad gains much in closing a compromise in this manner. It not only satisfies the injured man, but it satisfies his friends and acquaintances, the doctor, the banker and the prominent citizen, who immediately become a potent influence in a community against personal injury litigation.

The claim agent who makes a settlement for the smallest sum is not always the best claim agent. He invariably has many "knockers" on his territory and lots of litigation against his company, whereas the claim agent who exercises good judgment in determining the proper amount to pay has everybody helping him with his cases, and besides, he smooths the way for a pleasant relationship between his company and its neighbors in other and perhaps more important matters. I believe there is as much danger of paying too little as there is in paying too much in cases where the injured person is friendly and inclined to permit the claim agent to name the amount. The art of the business is in being able to survey a situation and decide upon a fair and proper sum to pay. Settlement should be upon a basis so fair as to stand four square to all the winds that blow. But the friendly cases are in the minority, and growing fewer all the time.

In handling the other class of cases, where the claimant is unreasonable and has been listening to the siren song of the damage suit lawyer and his agent, who, before they are employed, are always against a compromise at any figure, I believe the best method is to locate the influences that would naturally control the injured person and work through that source. There is a key to every situation. The difficulty is in finding it.

It is almost unbelievable to what extent the damage suit lawyer and his agents are able to poison the mind of the injured person against the claim agent and the company. No matter how good intentioned you may be toward the injured person, no matter if you be willing to pay more than could be recovered net at the end of a lawsuit after months, if not years, of waiting, it is an uphill job at best to dislodge in his mind the glittering hope of drawing the prize held out to him as an inducement to sue, but it is well to keep on trying and not give up. The claim agent who is easily discouraged and quails in the presence of difficulty is not made of the right kind of stuff to do successful claim work in this day and age. If he perseveres he will succeed oftener than he fails. The claim agent must be able to tell the injured person of settlements he has made that were fair and just and satisfactory to all parties concerned. He must also be able to tell something about cases the damage lawyers will not talk about, the litigated cases that terminated disastrously to injured persons.

A railroad corporation should pay an injured person, in a liability case, about what he could recover net to himself at the end of a lawsuit, figured on the best information obtainable, and only attempt to save attorney's fees and court costs in adjusting claims of serious injury. Twenty-five per cent. of the total paid out by the average railroad in a year and charged to the personal injury account is waste; that is, it goes to the payment of court costs, witness fees and into the pockets of the damage suit lawyer and his organization. If we could save that for the railroads, it would be considerable and would fully satisfy them, and besides, what a blessing it would be to the injured people and their families, if we could only make them see it. Our mission, as I view it, is to starve out the damage suit lawyer and put him out of business. His sinister shadow falls across the pathway of nearly every unfortunate with a claim against a corporation, and he is doing as much in this country today to array employee against employer and stimulate unrest and discontent as any other factor, and why? Simply that he may use the cripple as a vehicle to enrich himself, and with what result? In the cases he is fortunate enough to win, he takes out of the sums recovered his dividends and the expenses ranging from 33⅓ to 50 per cent. He then has no further interest in the cripples and they are cast out into the world with perhaps a few thousand dollars at best and no capacity for taking care of it, and, as a rule, they invest it in some little business and the inevitable happens. They are the familiar fellows you see on the street corners in all of the large cities of the land.

The policy of railroads is to take care of maimed employees in positions which they can fill, wherever it is possible to do so, and this is done entirely separate and apart from any settlement that is made. I would estimate that 75 per cent. of maimed employees who do not sue are provided with positions which, in most instances, they hold as long as they live, clinging to their employers, like the ivy to the oak, for succor and support, and these men usually get about as much net out of their claims as if they had sued, and oftentimes more, but the damage suit lawyer does not get his, and there is the rub.

I am an optimist and can see signs of the dawn of a brighter day for the railroads and their injured employees. There never was a time in our history when railroad managements were so thoroughly alive to the situation as they are today. They are accustoming themselves to think of the distress of human life and how to relieve it. Evidence of this is seen in the pensioning of old employees, in the building and equipping of hospitals, in the liberal sums they are willing to pay in compromise of bona fide personal injury cases, in the sincere efforts that are made to provide the maimed with employment where left free to work the matter out, and in many other ways. They are approaching this matter upon a basis of humanity and sympathy, seeking the good and comfort of the unfortunates for whom they feel a sense of responsibility, a deep-rooted interest born of sympathy. Under these conditions we should not have much difficulty in adjusting our personal injury claims, especially with employees. In our fight to protect injured employees and prevent them from being literally torn away from their employers, their real friends, by self-serving damage suit lawyers and their agents, already drunk with success, and greedy for more coin of the realm, we should stand upon the broad foundation of justice and righteousness between man and man and let it be known far and wide and back it up by sincerity of purpose in our every act. I sympathize, of course, with the poor fellows who are lured away through the subtle methods of the trickster, but after all, good comes out of it in that others are able to profit by the sad experience of unfortunates who are willing to turn against a friend and faithful employer anxious to do a good part by them.

We have still another class of personal injury claims to deal with, the most difficult of all to handle. I refer to the fraudulent claims. In nearly all of these cases the claimants have some bodily infirmity which they try to capitalize by palming it off on the railroad as having resulted from an accident. They invariably select a time and place to pull off the "accident" under circumstances which would render the railroad liable in damages if an injury occurred. They have little difficulty in finding doctors who are willing to be fooled for a stipulated contingent fee. Frequently the desirability of adjusting claims of this character is suggested in order to reduce an uncertainty to a certainty and save the costs of litigation, but the difficulty is, where one of these fraudulent claims is adjusted, the effect is to stimulate more claims, and instead of making progress through such a policy, we actually slip the other way. We make two blades of grass grow where but one grew before, but it is the wrong kind of grass. If we do not settle the game is played to the limit, there is a trial, and sometimes the railroad is mulcted in damages, but oftener the fraud is exposed before the goal is reached. Whatever the result, I am convinced it is wise to

exploit this class of cases before the public as much as possible. If we compromise them as a mere matter of temporary expediency, the railroad becomes a party to the fraud. If a robbery is to be perpetrated, let someone else be responsible for it.

The fact that railroads will at times capitulate and buy their peace by adjusting fraudulent claims, I verily believe, is responsible for as many "railway spines" and "nervous wrecks" as are collisions and derailments. A street railway company in a certain southern city adopted a policy of settling all claims and keeping out of court. Fraudulent claims increased at an alarming rate. The policy was changed and all frivolous and fraudulent claims were fought out to the end. There were so many suits that nearly all the qualified jurors sat upon some of these cases and became educated to look for the fraud and injustice of the litigation and the result was that the juries put an end to the system. They almost carried it to the other extreme and it became difficult for a man with a bona fide case to get justice. All cases were looked upon with suspicion and the honest claimant suffered from the odium cast upon him by the crook.

If the railroads of this country, acting in concert, should adopt a policy of fighting all fraudulent, suspicious and frivolous cases, they could in time educate the people just as did the street railway company in the city referred to. It would be the same proposition except on a larger scale. Our difficulty now is that we too often submit to wrong and injustice in order to gain a temporary advantage. We lose the benefit and effect that would flow from exploiting all the cases that lack merit. We should take up the time of the court and its machinery, and of juries, in trying this class of cases. Too often the suggestion is made to the claim department: "We can settle that case for less than it will cost to try it. Why not?" The fact that a plaintiff is willing to do that is a confession of lack of merit in the claim. If the claim department submits and the claim is paid, the curtain is drawn and the public never knows anything about the transaction. We should make a painstaking effort to separate the wheat from the chaff. If railroads did not pay out so much money to those not entitled to it, they would have more to pay to those that are entitled to it, and if the courts and juries had an opportunity to know the situation as it is, they would help us make the division, but so long as railroads do not take advantage of the opportunity which is theirs, they will never know. I feel that meritorious claims should be adjusted at reasonable, even liberal figures, but that all frivolous, fraudulent and suspicious cases should be resisted and advertised to the fullest extent. By persistently carrying out such a policy, the public would eventually understand it was unnecessary to sue a railroad in order to get justice.

In many instances there has been a disposition on the part of interested persons to give out unreliable information relative to the amounts recovered in personal injury lawsuits and injured persons frequently confront claim agents with this false information. In one case which Mr. Failing handled, a death case of non-liability, in which he offered to pay a substantial sum, suit was filed and there was a verdict for $20,000. This was written up in the newspapers and advertised quite extensively. Later on the case was settled with the attorneys representing the plaintiff for one-half the amount he had originally offered direct to the beneficiary. Of course, there was no publication of the closing transaction, and claimants confronted him so often with the newspaper story of the verdict rendered by the jury that he found it necessary to photograph the newspaper clipping and the release for the amount that was actually paid, which was effective in convincing claimants of what really did happen to the case. We have had a few cases on our line where injured persons recovered damages at the end of the law and later accepted employment as runners for damage suit lawyers. One of the arguments they used in soliciting cases was what they had been able to accomplish through litigation of their own claims. We discovered that they were distorting the facts. One man in particular, who had recovered $5,200 in St. Paul for the loss of a leg, was reporting it around to injured employees that he secured $8,000. We found it necessary to obtain certified copies of the judgment of $5,200 which was affirmed by the Supreme Court and distribute them in the community where this man had given out the false information. We have pursued the same course in a number of other cases.

It is true that the publication of large verdicts at initial trials creates a wrong impression in the public mind, and especially upon the minds of prospective claimants. Also, men who get upon juries read these reports and are doubtless influenced by them to some extent in arriving at their verdicts, but I do not know of any way this situation can be remedied, except where these reports are mentioned by claimants in the course of negotiations for settlement, and in those instances Mr. Failing's scheme of photographing the release and the newspaper report, I think, is good, as well as the other plan of securing certified copies of judgments for distribution.

"Keeping injured persons in line for settlement" is not an easy task. Here is where close co-operation between the claims agent and other departments of the service fits in best. On the railroad which I have the honor to represent (and I think the same is true of all other lines) the practice is to take just as good care of an injured person as it is possible to do—furnish the best of surgical treatment, nursing and hospital service, and when he is sufficiently recovered to be able to talk business, and inclined to do so, to go to him and have a heart to heart talk about his case and request him to hold himself free to deal direct with the company when he is ready to consider the matter of adjusting his claim, explaining, also, that in case of his failure to reach an agreement he would be left upon just as high ground to pursue another course, should he desire to do so, as he was upon in the beginning. It does not require much intelligence for one to understand that a compromise is preferable to a lawsuit and our reasonable request, freighted with so much importance for the weal or woe of the injured person, is usually granted cheerfully by claimants of ordinary intelligence, and always by those of higher mentality. The weak-minded, those who are not able to think for themselves, are the ones most likely to fall a willing prey into the outstretched arms of the damage suit shark, for they can be handled by him like clay in the potter's hands. In many of these cases suit is filed without affording the company an opportunity for a hearing. Nobody ever heard of a business man, or a man of affairs, suing an individual, or a corporation, without first rendering a bill and making at least a reasonable effort to collect it; nobody ever heard of a lawyer sending an agent to a man of brains for the purpose of trying to induce him to file a suit in advance of exhausting every effort to effect a friendly settlement. The business of the damage suit scavenger thrives among the weak and drooping, and how to hold that unfortunate class in line for settlement is, indeed, a problem.

A STATE RAILWAY OFFICER ON GOVERNMENT OWNERSHIP

President Ripley of the Santa Fe recently contributed to the Saturday Evening Post an article on government ownership of railways, in reply to one by former Governor Stubbs of Kansas, which appeared in an earlier issue of the same paper. As a result, Mr. Ripley has received numerous letters discussing government ownership from people all over the world. One of the most interesting of these is from an Englishman who has had actual experience as an officer of a state railway. The following is his letter, excepting for some slight modifications which have been made to conceal the writer's identity and thereby save him from any embarrassment that might possibly result from his frank comments:

"For the past seven years I have held the post of assistant to the general manager of a small colonial railway, owned and operated by the government, and have also been employed in the

United States for three years; in addition to this American methods were the model far more than European ones in the operation of the line. Having always followed railway affairs in the principal countries with great interest it appears that the bait which attracts the public in all lands to advocate government ownership is the hope that the railway service will be run at a loss to the government, or, in other words, so that those using the railway may do so at the expense of those who do not.

"The public were continually making the following demands:

"(1) That *all* rates, both freight and passenger, should be reduced to the figure considered reasonable by themselves.

"(2) That all services should be much improved in every way, not only as to class of accommodation required, but also to the extent of removing necessary regulations, such as demurrage, storage charges on unconsigned or uncollected goods, insurance charges for valuable goods and most other necessary regulations for the protection of the interests of the concern.

"(3) That all rates should be on the ton-mile basis for all articles when this would be favorable to a particular district when compared with the existing rates to some other district, but vice versa when more advantageous; this quite irrespective of the physical characteristics of two sections of the line, etc.

"(4) Perpetual agitation for branch lines into unremunerative districts, very largely for the reason that some other parish had a branch line—the line of argument advanced as regards navy dockyards in the United States.

"These same arguments are further used by the politicians for their own purposes to which they add the cry that all railway employees are underpaid.

"Add to this the opinion held by most government employees that the government's dollar bill is only worth about 80 cents in equivalent work, and that they are of inalienable right entitled to many concessions which they would not expect with a first class company, and it is evident that that much abused ideal 'efficiency' becomes unattainable under such conditions.

"I quite admit that the concern of which I have had experience is microscopic in magnitude compared with any large company, but the point of view of mankind as to desiring something at the other fellow's expense is universal.

"Aside from the impossibility of comparing railway operations in one country with those in another except on very general lines it has always seemed to me that no comparisons of rates could be made unless the differences in the value of money in the corresponding countries was also taken into account. Taking passenger fares, for example, the following rough tabulation will illustrate the point:

Country.	Av. rate per mile. Cents	Av. laborer's wage per day	Miles possible to travel for one day's wage. Miles
United States	2	$1.50	75
England	2 (3rd cl.)	.75	37.5
Germany	1 (4th cl.)	.50	50
British India	0.5 (3rd cl.)	.08	16

"The usual statement by 'popular' writers and many others is that the rate in England and the United States is the same, whereas traveling for a laborer is twice as cheap in the United States as in England. I do not advance these figures as exact, but only to illustrate the necessity of a common unit of comparison."

NEW DOCKS FOR MELBOURNE.—The Melbourne Harbor Trust has approved a scheme for the construction of four docks on the Yarra costing nearly $30,000,000.

THE HOHENZOLLERN CANAL OF GERMANY.—On June 17, the German Emperor opened for service the Hohenzollern Canal, joining the rivers Oder and Spree and bringing Berlin into water communication with Stettin on the Baltic sea 150 miles away. The completion of this canal, the history of which dates back to 1669, marks an epoch in the development of German inland waterways that radiate in every direction and solve the problem of chief transportation in Germany.

AMERICAN SIGNAL PRACTICE COMPARED WITH BRITISH*

While the Pennsylvania Railroad generally uses white for clear, green for caution, and red for stop, it has on some small parts of its line followed the practice in vogue on a majority of the mileage in the states and Canada, viz., green for clear, yellow for caution, red for stop. Our use of white for clear is illogical and almost indefensible; your use of red for caution in your distant signals is equally pernicious; and yet we both are in a quandary for a remedy. Our own management feels that the yellow is not sufficiently distinctive, especially in the pall of smoke hanging over our Pittsburgh and other steel centers; while your fog conditions are certainly as bad and probably worse. Our glass makers are working to develop a better yellow, and some of us have worked unsuccessfully on a combination of lights. Your use of red in the fish-tail signal has one advantage—with home and distant signals on one mast you have two reds for stop; we have red over green, or red over yellow, as the case may be, and you will readily see the complications involved, but which are eliminated by the use of the three position signal.

The promoters of the flashlight are making great claims for it, but it has not met with much favor. It has been suggested that we might use red for stop, green for caution, and a flashing white for proceed. This is a possible solution.

It may be possible to develop a position signal for the high running signals, formed of white lights only and available for day and night use. This is another possible solution worth looking into. But, meanwhile, pending the development of these two propositions, it seems to me that, with all its defects, yellow offers the only remedy; and the fact that so many roads are using it with good results goes far to confirm this view.

We are about to electrify our four-track line for local travel in the vicinity of Philadelphia. We are to use an overhead trolley and are now developing a light signal for day as well as night use; it takes about 15 watts per lamp, and is so powerful that it must be reduced at night. If we use it, it will probably be arranged so the lights can be turned down, in sections, from each interlocking cabin. In case of fog at night, they can be turned up to the same intensity as in daylight. A recent demonstration in the fog, in daylight, showed lights visible 2,500 ft. away, while the signal blade could be only dimly discerned at 1,500 ft. This, therefore, has possibilities; but it does not solve the color problem.

We are hearing much about audible signals and the wonderful developments of them in England. We may come to them in time, but, as in our automatic system, a distance signal becomes a home as soon as a train passes it, and continues as such until the train passes out of the block, the problem is complicated. Further, as our tracks are not policed as yours are, it is necessary for our drivers to watch the track constantly, and I doubt the advisability of substituting an audible for a visible signal with our conditions.

In busy places we use the track circuit; approach locking, electric switch locking and route locking, and go much further than you in safeguarding the signalman from making mistakes. A logical sequel is the automatic stop or train control system. As one of our prominent signal engineers remarked, "We try to make our signaling fool-proof; the English eliminate the fool." From recent occurrences it would appear that our attempts are, in some cases, futile, and that your elimination is, perhaps, incomplete.

Many of our signal engineers came from England. Much of our original apparatus was furnished from the same source. The result is a signal system combining English conservatism with American radicalism, which is standing well the test of time. The combination is a strong one.

*From a paper by A. H. Rudd, read in May, 1914, before the Institute of Railway Signal Engineers (England).

Pennsylvania Railroad X-25 Steel Box Car

Wood Is Used Only for the Floor and Lining; the 3-32 in. Roof Sheets Are Spot Welded to the Carlines

Following the lines of eventually having all of its freight cars of the all-steel type, a car, the framing of which can be used practically without change for either box, stock or refrigerator cars, was designed in the mechanical engineer's office of the Pennsylvania Railroad in 1912 and a large number have since been built. The most recent design of box car, which is designated as class X-25, is constructed entirely of steel with the exception of a wooden floor and 7/8 in. wooden lining. This car, when mounted on arch bar trucks with 5½ in. by 10 in. journals, weighs 49,100 lb.

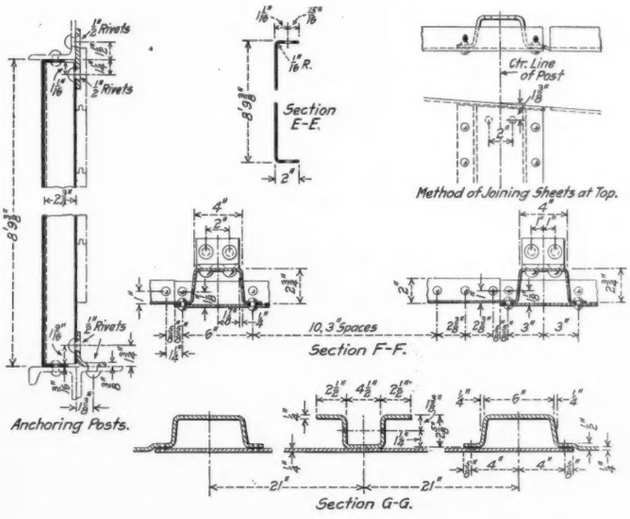
The underframe is of the type in which the weight of the superstructure and lading is transferred to the center sills by means of two crossbearers or cantilevers and the end sills. The center girder has a minimum section area between the rear fol-

End View of the Pennsylvania Steel Box Car

lower stops of 34 sq. in. and is built up of two 3/8 in. fish belly type pressed U or channel shaped sections, 20 in. deep between the crossbearers and with 4 in. flanges top and bottom, the channels being spaced 12⅞ in. back to back and tapering to 11 in. at a point 22 11/16 in. back of the center plate. There is a 3/8 in. by 26 in. top cover plate riveted the full length of the center sills, and a 4 in. by 4 in. by 9/16 in. angle riveted to the bottom of each sill on the inside and extending between the back draft lugs, which are incorporated in the center plate reinforcing casting.

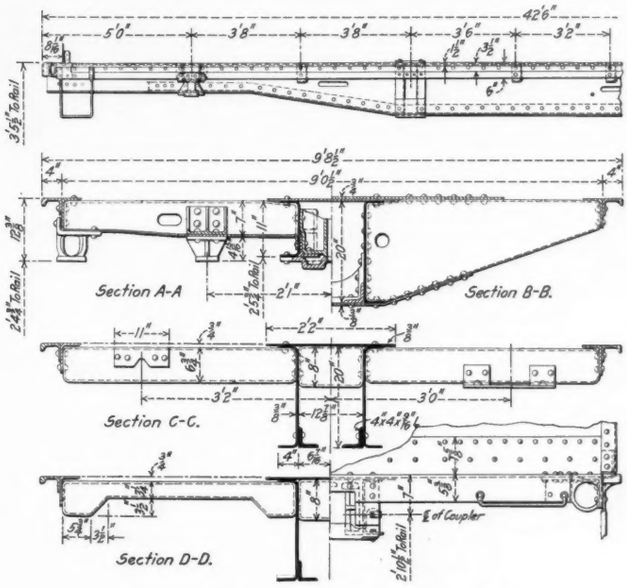
The center construction is also reinforced at each end by a cast steel striking plate and front draft lugs combined, and there are also a steel casting above the center plate, a cast steel spreader at each point of connection between the crossbearers and the center sills, and pressed spreaders between all intermediate diaphragms. The crossbearers are composed of two dished diaphragms, 3/8 in. thick and having 3½ in. flanges. These are set 5 in. apart and have 12 in. by 3/8 in. top and bottom cover plates extending across the center sills and riveted to the crossbearer flanges. The crossbearers are riveted to the center sill and the bottom member of the side truss.

The body bolster is composed of a diaphragm 3/8 in. thick, 7



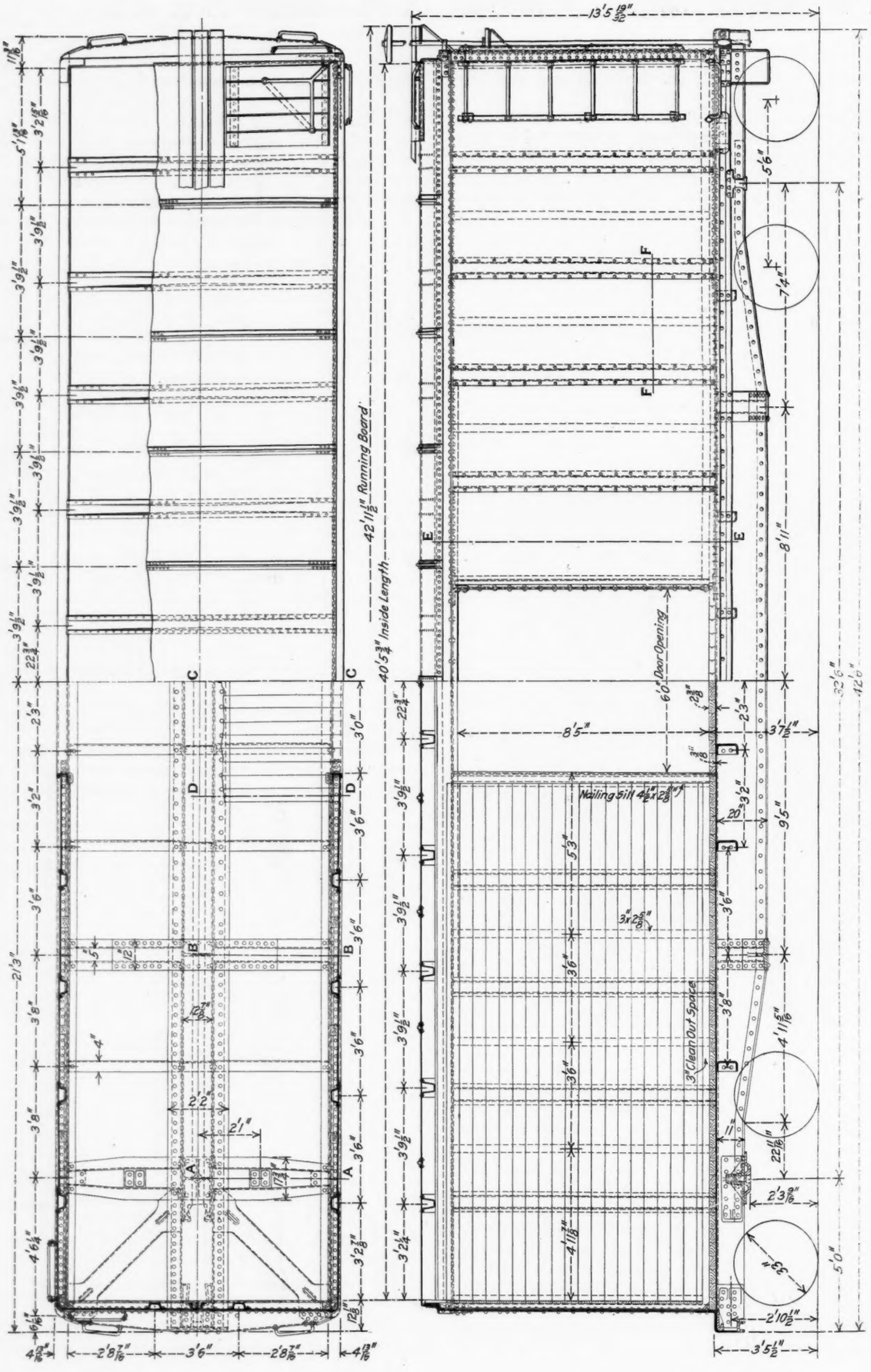
Structural Details; References Are to the General Drawing

in. deep, 7⅜ in. between vertical walls and riveted to the center sills and side truss. This member has to take care of the side bearing thrust only and does not carry any of the load. Above the side bearing, which is a steel casting, a cast steel reinforcing block, and at the extreme end is a combined roping iron and



Arrangement of the Underframe and Details

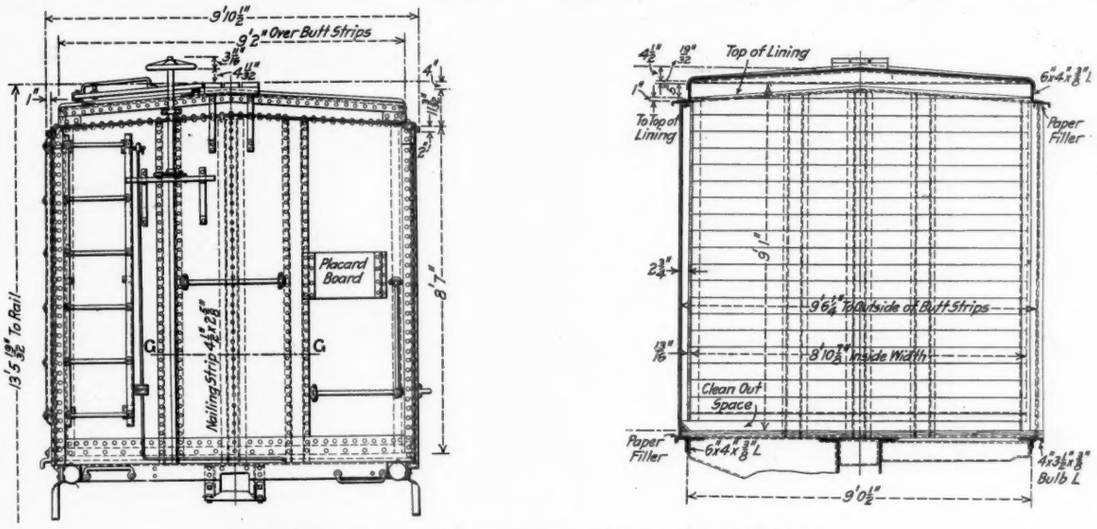
jacking casting. The drop forged center plate is secured to the flanges of the center sills, as well as the center plate reinforcing casting, which extends back towards the center of the car 9 in.



General Arrangement of the Pennsylvania Steel Box Car

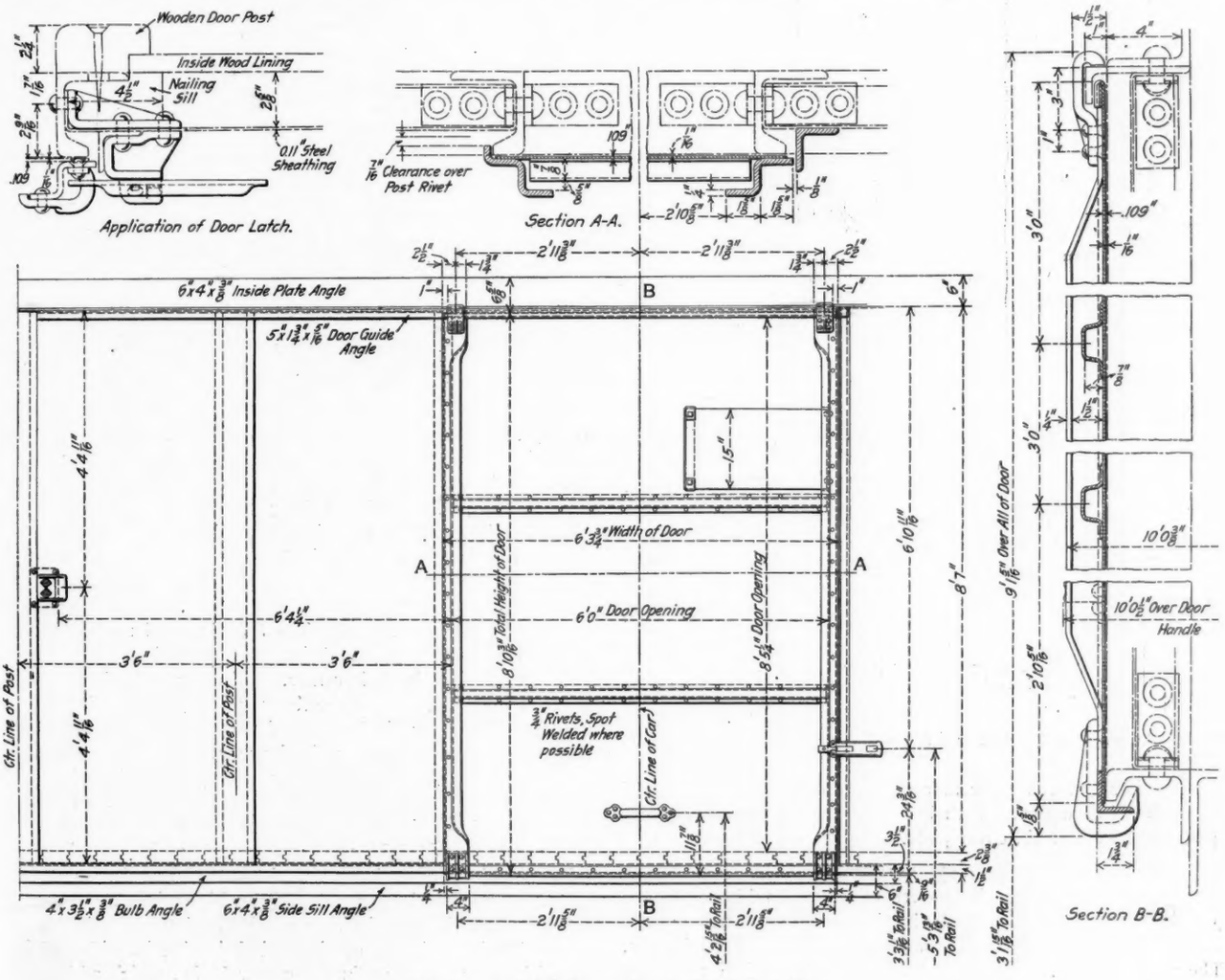
from the center line of the center plate, and reinforces the center sills.

There are six intermediate diaphragms on either side of the car, four of which are located between the crossbearers and one midway between the crossbearer and body bolster at either end of the car. They are 6¾ in. deep and ⅜ in. thick and do not carry any of the load, as their top flanges are ¾ in. below the bottom of the floor, but simply act as stiffeners for the bottom member of the side truss, and as supports for the brake rigging.



End Elevation and Cross Sections of Pennsylvania Box Car

The end sill consists of a Z-shaped plate ⅜ in. in thickness, which extends the entire width of the car, binding the side and end construction together. It is 5 in. below the top of the center

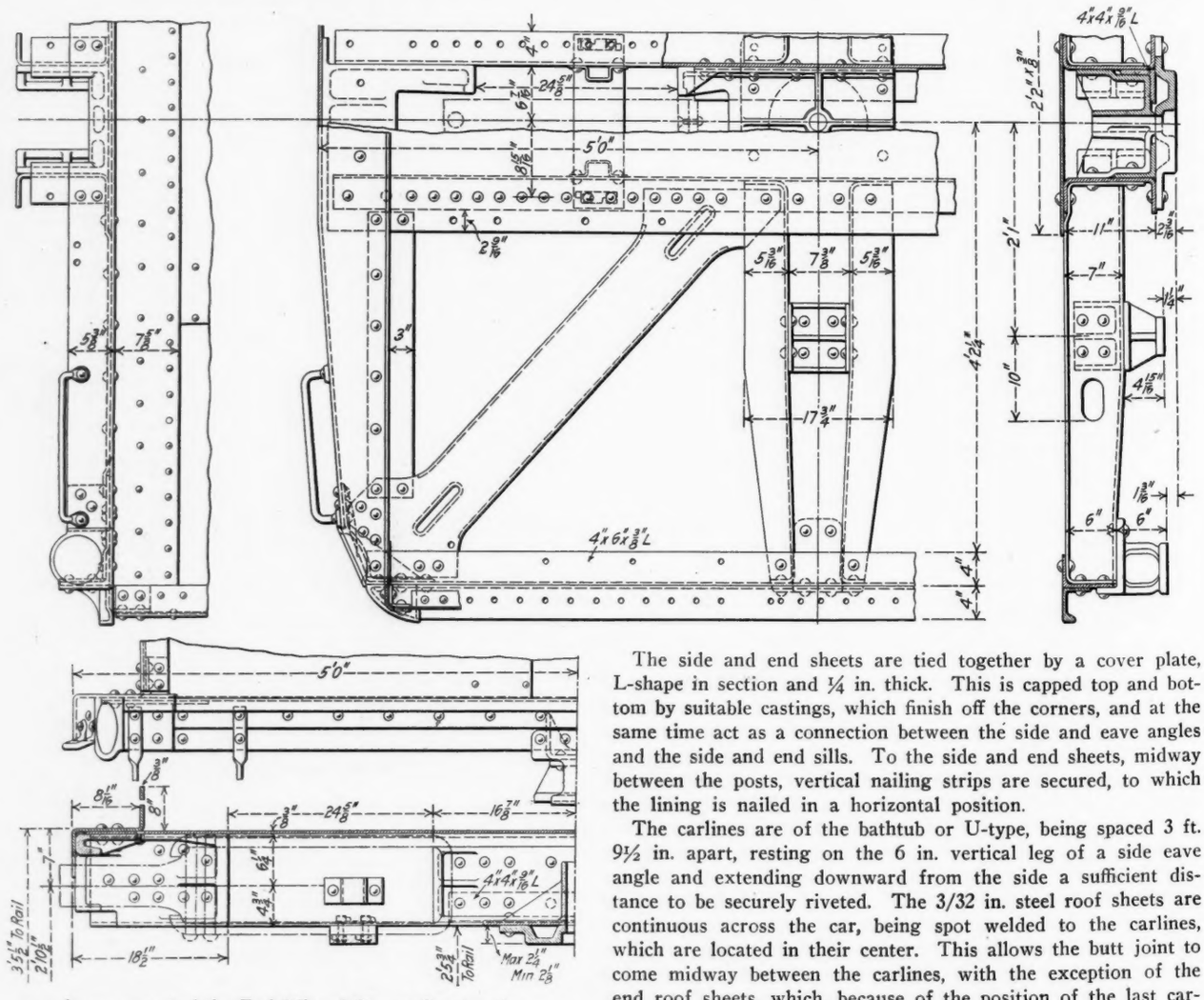


Side Door of the Pennsylvania Steel Box Car

sills and is flanged inward for a distance of 8 7/16 in. at the center, narrowing somewhat toward either side. The back vertical leg, which is 8 in. high, forms a connection for the end construction. The end silt is secured to the striking plate and at either end to a cast steel push-pole pocket and corner casting, which are in turn riveted together and secured to the bottom member of the side truss and to the diagonal brace, while the top vertical leg of the end sill is riveted to the end sheets the entire width of the car.

The diagonal braces are of U-shape section, 8 in. wide and ⅜ in. thick, with 2½ in. flanges pointing downward. They are flattened at both ends, being fastened to the top flange of the center sills at one end and to the push-pole pocket and the bottom member of the side truss at the other end.

The side sill, or bottom member of the side truss, runs continuously between the end sills and is composed of a 4 in. by 6 in. by ⅜ in. angle and a 4 in. by 3½ in. by ⅜ in. bulb angle, which are riveted together back to back. The short leg of the angle points towards the center of the car and the long leg of the bulb points outward, both legs being in the same horizontal plane as the center sill cover plate.



Arrangement of the End Sill and Corner Construction

SUPERSTRUCTURE

In designing the car efforts were made to provide as great a protection as possible for the lading in case of accident or rough usage, and to reduce, as far as possible, the number of parts. The superstructure was designed with an outside shell composed of a series of ⅛ in. sheets for the side, and ¼ in. sheets for the ends, in which the posts are pressed integral. A U-shape post is pressed into one end of each sheet and is overlapped by the adjacent sheet, which acts as a cover plate for the post and gives a smooth surface on the outside of the car. The post portion of the sheet is 2¾ in. deep and 4 in. wide at the back. The sides of the car are composed of ten sheets each, which have a 2 in. flange, top and bottom, by means of which they are secured to the bulb angle of the side sill and to the 6 in. by 4 in. by ⅜ in. eave angle or side plate at the top.

The end construction is similar to that of the sides, each end being composed of three sheets, the two nearest the sides of the car containing the depression which forms the post. Where the central sheet overlaps these, they are depressed ¼ in., making the outside face perfectly smooth so that it may fit down snugly behind the end sill. The middle sheet has an additional U-shape stiffener at the center, 2⅝ in. deep, 9½ in. wide and ¼ in. thick, extending vertically from the end sill to the eave angle. The side door posts are made up of 4 in. by 3½ in. by ⅜ in. bulb angles.

The side and end sheets are tied together by a cover plate, L-shape in section and ¼ in. thick. This is capped top and bottom by suitable castings, which finish off the corners, and at the same time act as a connection between the side and eave angles and the side and end sills. To the side and end sheets, midway between the posts, vertical nailing strips are secured, to which the lining is nailed in a horizontal position.

The carlines are of the bathtub or U-type, being spaced 3 ft. 9½ in. apart, resting on the 6 in. vertical leg of a side eave angle and extending downward from the side a sufficient distance to be securely riveted. The 3/32 in. steel roof sheets are continuous across the car, being spot welded to the carlines, which are located in their center. This allows the butt joint to come midway between the carlines, with the exception of the end roof sheets, which, because of the position of the last carline, must cover one and one-half spaces.

The roof sheets are flanged down on the vertical leg of the side and end eave angles 2½ in. and are secured to them by ⅜ in. rivets spaced 4¾ in apart. Between the roof sheets and the eave angles are 3/16 in. washers, through which the rivets are driven. This construction allows for a slight ventilation and yet is small enough to keep out anything which might cause damage to the lading. The roof sheets are fastened together by an outside and inside strip, the outside strip being 2½ in. wide and 3/32 in. thick and pressed up in the center ⅞ in., which adds to the stiffness of the structure. The inside strip is 2½ in. wide and

3/16 in. thick. These strips are continuous across the car and are riveted to the roof sheets with ¼ in. rivets spaced 1½ in. apart. To insure a perfectly water-tight joint, tar paper is placed between the outside butt strip and the roof sheets. The end and side eave construction is the same, except that there is no ventilation at the end.

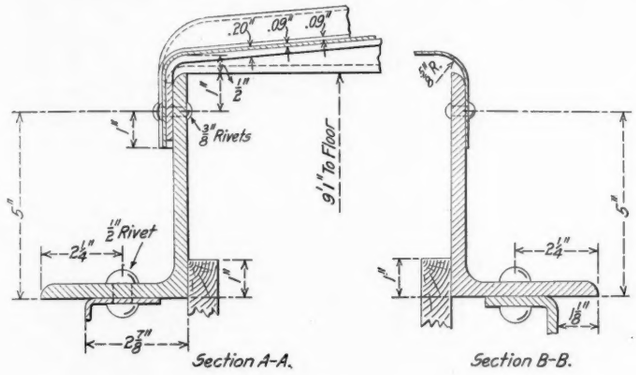
The 13/16 in. pine inside lining is nailed to vertical nailing strips, conveniently spaced around the sides and ends. The lining extends to within 3 in. of the floor. There is an air space back of the lining which allows for ventilation, and also facilitates cleaning. The application of a triangular grain strip around the edge of the floor, next to the side sheets, allows all foreign matter to work its way out from behind the lining.

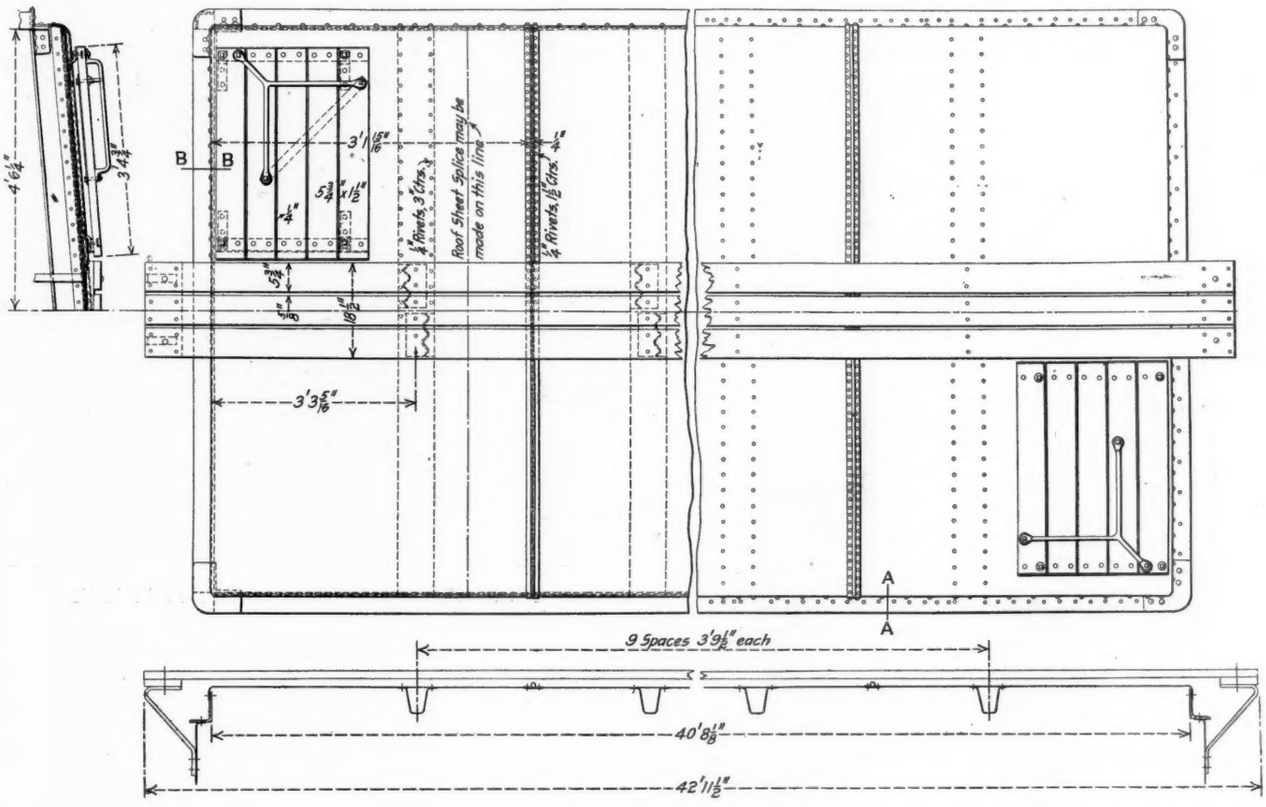
A new feature in this car is the manner in which the safety appliances are secured. All grab irons are fastened to castings by means of a slotted hole in the face, which permits the removal of the grab iron bolt, and thus the renewal of the grab irons without disturbing the inside lining. A like provision is made for the side door stop.

The car is equipped with outside hung doors, supported at the top by hangers at both corners. A 5 in. by 1¾ in. by 5/16 in. angle acts as a top guide rail and weather strip, the short leg being turned down over the face of the door. The door is made of .109 open hearth steel, with two vertical Z-shape edge stiffeners, which are flattened out, top and bottom, supporting the door hanger and door guide castings. The rear stiffener laps over the door post, and the front one butts against a 2 in. by 2 in. by ¼ in. angle riveted to the side sheets and projecting slightly beyond the door, thus forming a weather strip, front and back. There are two horizontal U-shape sections pressed in the end of the top and intermediate door sheets, which overlap the adjacent sheets, forming a stiffener across the door. At the bottom of the door is a 1¾ in. by 1¾ in. by ¼ in. stiffening angle, which runs continuously between the vertical stiffeners. The inside of the door is perfectly smooth, all rivets being countersunk. A clearance of 1/16 in. is allowed for the door to clear the door post. The floor is extended through the door opening, flush with the door post, and is supported by the bulb angle of the side sill.

The following are the leading dimensions and data:

Length over end sills	42 ft. 6 in.
Inside length	40 ft. 5 in.
Inside width	8 ft. 10 in.
Inside height	9 ft. 1 in.
Height top of rail to top of floor	3 ft. 7½ in.
Height at eaves	12 ft. 10 in.
Width at eaves	9 ft. 2 in.
Capacity	100,000 lb.
Cubical capacity	2,343 cu. ft.
Weight	49,100 lb.





Arrangement and Details of the Roof

BUSINESS OF THE SUEZ CANAL.—Suez Canal receipts during 1914 showed an increase up to the end of May of $436,000 compared with the like period in 1913.

GRAIN ELEVATORS IN THE BALKAN STATES.—A new grain elevator which is soon to be opened for public use in Constanza, Roumania, will be the third elevator in that port to be owned and operated by the government. The capacity of the other two is 1,252,352 bu. each, but the only other elevators in the country are at Bralia and Galatz, on the Danube. These two elevators have respective capacity of 1,071,418 bu., and 982,086 bu.

LOYALTY, AS VIEWED BY AN EMPLOYEE

[From Sunset-Central Bulletin.*]

Harmonious relations existing among foremen create a harmonious relation among the men; the spirit of good will and brotherly feeling is contagious. . . . Is there any other business on earth that needs something to encourage the men it employs more than a railroad company? No, not one; for the simple reason railroad companies are criticized, blackguarded, persecuted and unfavorably censored without just cause more than any other enterprise on earth. They are a target shot at from every conceivable angle and with every kind of ammunition. It is a natural consequence that men who hear this unmerited criticism on every hand should enter the company's service with their minds embittered by such unwholesome suggestions; and in spite of the pay they receive and the treatment they are accorded, it takes many a year to purge this venom and antagonism from their minds.

The railroad companies of these United States lose hundreds of thousands of dollars every year through "soldiering," negligence and carelessness, emanating from a spirit of unloyalty which is an inheritance born of malice and handed down from one generation to another. The only antidote the stockholders can employ to overcome these adverse influences is by reaching their subordinate employees through the avenues of their presidents, managers, superintendents and the foremen they employ; and if there is any missing link of co-operation and harmony, from the president to the firing line, the chain is broken and the good influences which are so essential are lost.

COMBINED COAT, HAT AND UMBRELLA HOOK

A novel combined coat, hat and umbrella hook, or holder, unique in that the things it holds may be held securely under lock and key is shown in the illustrations. The device is the design of C. L. Bundy of Kingsland, N. J., and is primarily intended for use in shops or offices, although it can also be used in restaurants, barber shops and similar places. Fig. 1 illustrates the holder closed and empty in its natural position. The key has to be turned before the hook can be opened to the position shown in Fig. 2. The person who wishes to hang up his hat and coat, and his umbrella also, first places the coat on the hook portion projecting from the bottom of the holder. The absence of the hanger or strap on the neck of the garment is no detriment, as the knob which fits into the hole at the end of the hook is small enough not to pinch the coat and cut the cloth. The next step is to place the umbrella in that one of the holes in the horizontal bar which is best fitted to its size and then to place the hat on the smaller bar which extends to the front. The holder may then be shut and the key withdrawn; the three articles will be securely fastened as shown in Fig. 3.

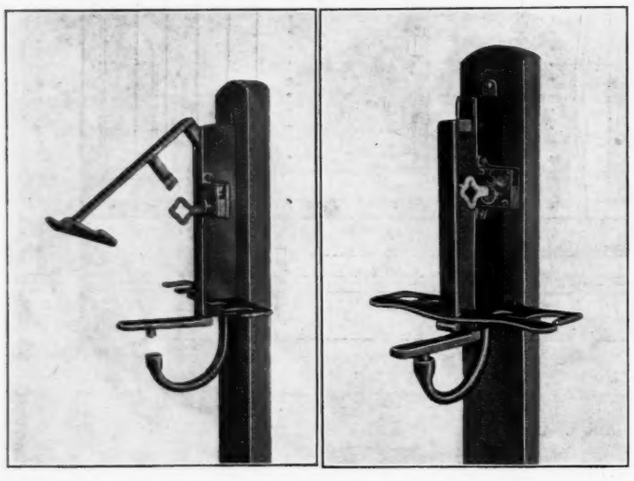


Fig. 1 Fig. 2

Combined Coat, Hat and Umbrella Hook Shown Open and Closed

The holder is made of malleable iron and with the exclusion of the lock, is made of three essential pieces of metal, the main body and the two horizontal bars making up one piece, the hook a second, and the clamp which is hinged to the latter in the body of the holder the third. The lock may be as simple or complex as is necessary; it is so devised, however, that the key can be withdrawn only when the hook is shut. The holder has certain advantages as compared to a locker, in that it is cleaner and cheaper and occupies less space. Lockers have a tendency to accumulate waste, old papers and similar things, and it is, necessary, therefore, to exercise careful supervision over the care that is exercised in this respect, or else periodically clean them out.

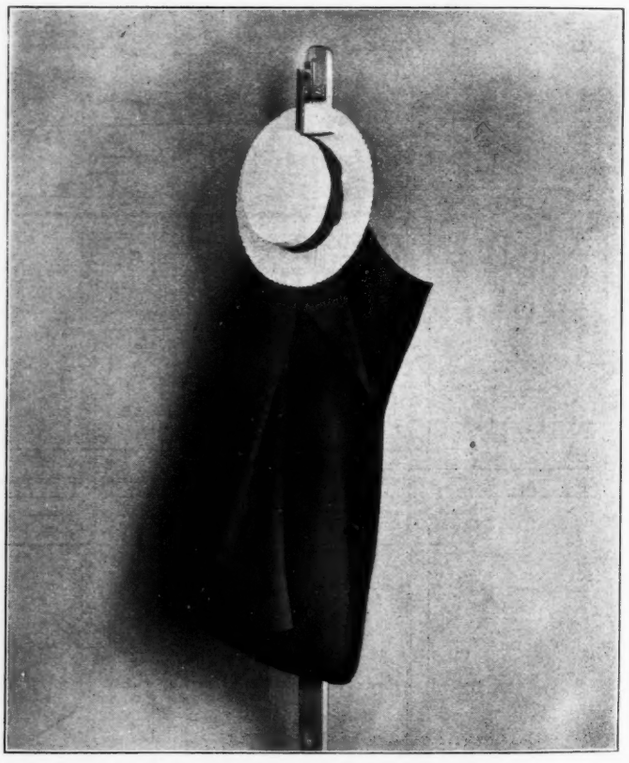


Fig. 3—The Hook Holding Coat, Hat and Umbrella

The hooks may also be used advantageously in offices, barber shops, railroad dining and lunch rooms. In such cases it may be desirable to have them made of brass, or nickel-plated or lacquered to suit the scheme of design of the room in which they are placed. The polished malleable iron hook costs about $1.25.

CHINESE RAILWAY EXTENSION.—It is stated with regard to the Ningpo-Hangchow section of the Shanghai-Hangchow-Ningpo Railway that the laying of the rails was completed and opened for traffic in December, 1913, as far as Pakwan, a distance of 53 miles from Ningpo. The rails (85 lb. to the yard) were procured from the Hangyang iron works and America. The daily revenue from both passenger and freight traffic between Ningpo and Pakwan, is estimated to vary between $700 and $1,000. The extent of construction is not of great moment, and its growth has barely influenced the trade in any way. It is rumored that the nationalization of this section through purchase by the Chinese government from the shareholders is contemplated, the question for decision being one of terms alone.

*From an article on "Co-operation and Harmony," by Bennette Wilson, Engine Despatcher, Southern Pacific Company.

General News Department

The Conference Committee of Managers of the Western roads has selected W. L. Park, vice-president of the Illinois Central, and H. E. Byram, vice-president of the Chicago, Burlington & Quincy, as arbitrators in the enginemen's and firemen's wage controversy.

The United States Steel Corporation reports that the unfilled orders on its books July 31 amounted to 4,158,589 tons, an increase of 125,732 tons over the amount recorded on June 30. As compared with July 31 last year, there is a decrease of 1,240,767 tons.

The new cut-off line of the Southern Pacific from Eureka on the Houston & Texas Central to Stella on the Galveston, Harrisburg & San Antonio, nine miles long, has been put in operation. By the cut-off through freight between North Texas points and the port of Galveston can be expedited materially, as it need not pass through Houston.

The lower house of Congress, on Tuesday of this week passed the Moon Bill, providing for a readjustment of the rates for payment for transportation of the mails by railroad. This bill also contains a number of provisions relating to postmasters, their pay and their rules, and probably will be the subject of disagreement between the Senate and the House.

A standard dining car of the Chicago, Burlington & Quincy has been selected by the state pure food commissioner of Nebraska to demonstrate the proper method of serving food on dining cars, at the state fair to be held in Lincoln, September 7 to 11. All meals will be served to the fair visitors, who will be allowed to inspect the kitchen and see how the work is conducted.

The St. Joseph & Grand Island, which has taken off the one passenger train daily which it ran between Kansas City and St. Joseph, will, on September 1, abandon the freight service also on that section of its line. This will make St. Joseph, 61 miles north of Kansas City, the eastern terminus of the road. Between St. Joseph and Grand Island, 252 miles, the company runs two passenger trains each way, one in the night and one in the day time.

That part of the National Railways of Mexico which has been operated as a military railroad is to be surrendered to the old operating company, E. N. Brown, president. The revival of business of all kinds in Monterey, Saltillo, Torreon and other places in Constitutionalist territory has resulted in an urgent demand that the Laredo gateway be reopened. The war in Europe makes Mexico dependent upon the United States for important supplies, including many food products and machinery; and a heavy traffic between Mexico and the United States is expected quickly to develop by reason of the closing of many European ports, as soon as railroad facilities can be obtained.

The Public Utilities Commission of Illinois has announced that it will carry on an active campaign to reduce the danger to the public at highway grade crossings throughout the state. The most important factor in this campaign is the attempt to secure the arrest of all trespassers and to this end instructions will be issued by the commission, with the consent of the governor, to all municipal and railroad authorities to arrest all trespassers. A systematic effort will be made to educate the public as to the danger of grade crossings and to teach wayfarers to heed the warning signs. An inspection of all grade crossings throughout the state is being made, with the object of ordering better protection for dangerous crossings.

In a paper on the Compound Articulated Locomotive, presented by Anatole Mallet, originator of the Mallet type of locomotive, before the Institution of Mechanical Engineers at the Paris meeting, held in July, an original method of comparing the weight of locomotives with the weight of rail was mentioned. Mr. Mallet showed that in 1829, engines weighing five tons ran on rails of 34.2 lb. per yard, which was equal to 327 times the weight of rail per yard. In 1846, engines weighing 22 tons ran on rails of 70.52 lb. per yard, which is 700 times the weight of rail per yard. In 1880, 56-ton engines ran on rails of 84.6 lb. per yard, which is 1,480 times the weight of rail per yard. In 1911, engines weighing 96 tons ran on 96.77 lb. rails, which is 2,220 times the weight of rail per yard, and in the United States a Mallet engine with 10 coupled axles weighing 245 tons, adhesive weight, ran on 111 lb. rails, which is 4,950 times the weight of rail per yard.

Alaskan Railway Surveys

The Alaskan Engineering Commission now has a number of locating parties in the field running preliminary surveys from Portage Bay, Alaska, to Fairbanks, and also along the line of the Alaska Northern from Seward to the end of the constructed line at mile 72. A party is also running a line from Chitina on the Copper River Railroad, to the Matinuska coal fields. Considerable information is also in hand regarding other possible routes from the seacoast to the interior, but much of the data collected have been secured on reconnaissance surveys only. Some of these other routes will undoubtedly be investigated next year. The present surveys are being made to secure estimates of the probable cost of building the various lines. It is expected that about 600 miles of these surveys will be completed this summer.

Good Results of Safety Campaign on the Santa Fe

The following table, which has been prepared by Isaiah Hale, commissioner of safety of the Atchison, Topeka & Santa Fe, shows the number of personal injuries among employees of this road during the fiscal years ending June 30, 1913, and June 30, 1914. The employees are divided according to the classification in the personal injury record which is as follows: "A," train, engine and switching service; "B," warehouse and storehouse departments; "C," track and bridge and building departments; "D," shops and roundhouses; "E," other employees; "F," total employees. In connection with this report it is fair to note that during the last year a number of minor injuries were reported and recorded of a class of which no record was made in former years, so that as a matter of fact the result of the campaign for safety has been greater than indicated below.

	"A"		"B"		"C"		"D"		"E"		"F"	
	k	i	k	i	k	i	k	i	k	i	k	i
1913	40	2,321	2	889	43	3,469	11	6,092	7	650	103	13,421
1914	28	2,047	1	837	26	3,101	5	5,318	6	826	66	12,107
Decrease	12	274	1	52	17	368	6	774	1	176*	37	1,314
Per cent.	30	11¾	50	6	39	10½	54	12¾	14	25*	36	10—

*Increase.

Protest Against Enginemen's Wage Increase

A petition signed by about 250 men, employees of the various railroads entering Wichita, Kan., in the capacities of clerks, ticket sellers, employees of the freight department, baggage handlers, ushers, and others, has been sent to President Wilson at Washington, protesting against any further increase in the wages of locomotive engineers in the western territory, until such time as the other 90 per cent of railroad employees are better paid. It is declared that the petition is not in any way directed against, or intended to oppose organized labor. Continuing the petitioners say:

"Knowing as we do that railway managers of the country are continually confronted by an increase in operating expense on one side, and on the other hand by lack of power to increase their earnings, we realize that any further increase granted the engineers, who, we believe, are already well paid, would not only lessen our chances for better wages, but would necessitate a reduction of railway employees, or a reduction of some sort in order to meet the enforced deficit which will be caused by the increase asked by the engineers."

The petition then goes on to show that locomotive runners in Kansas earn anywhere from $200 to $300 per month, while their working hours, including all their overtime, would not total as much as those of the nine and ten-hour employees who earn from one-sixth to one-fourth of this amount.

The petition closes by saying "the engineers are already getting

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JUNE, 1914

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance										
		Freight.	Passenger.	Total. inc. misc.	Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.					
Atlanta & West Point	93	$47,641	$40,780	$104,899	$11,466	$21,918	$5,409	$27,589	$4,375	$70,757	$34,142	—$1,270	$7,125	$25,747	$23,752
Baltimore & Ohio—System	4,478	5,943,129	1,352,361	7,801,303	1,460,788	1,452,402	165,496	3,001,243	199,677	6,279,606	1,521,697	—51,159	135,522	1,335,016	—638,206
Belt Ry. Co. of Chicago	21	.....	.....	257,276	26,357	22,017	1,435	80,119	5,685	135,613	121,663	.....	12,113	109,550	20,382
Bingham & Garfield	27	145,953	4,710	150,928	17,521	24,285	860	20,417	2,985	66,068	84,860	.....	2,913	81,947	62,405
Buffalo & Susquehanna R. R. Corporation	253	93,745	6,408	104,101	28,729	32,132	994	34,065	5,787	101,707	2,394	.....	2,600	—206	.....
Buffalo & Susquehanna Ry.	91	14,455	6,496	23,293	6,109	8,647	418	12,523	3,321	31,018	—7,725	—32	1,900	—9,657	7,357
Butte, Anaconda & Pacific	90	101,806	12,482	124,074	15,194	24,502	658	34,859	3,550	78,763	45,301	.....	2,500	42,811	3,674
Chicago & Eastern Illinois	1,282	789,107	238,618	1,126,621	136,424	274,926	23,791	417,105	39,902	892,148	234,473	—2,418	56,900	175,155	—159,975
Chicago Great Western	1,496	797,013	265,213	1,158,123	173,306	206,521	53,680	410,662	34,186	878,355	279,768	4,018	51,222	232,564	—65,421
Chicago, Milwaukee & St. Paul	9,690	5,266,622	1,766,767	7,671,406	1,124,710	943,910	151,724	2,738,017	159,356	5,117,717	2,553,689	54,499	354,224	2,253,964	192,024
Colorado & Southern	1,127	430,762	119,764	593,787	90,283	71,106	12,798	188,985	22,454	385,626	208,161	—1,600	27,846	178,715	53,076
Delaware & Hudson Co.—R. R. Dept.	881	1,637,701	259,359	1,965,164	141,167	298,260	27,669	703,758	67,198	1,238,052	727,112	—4,274	56,250	666,588	—34,678
Denver & Rio Grande	2,585	1,299,654	402,153	1,790,633	300,400	319,672	43,368	519,942	52,879	1,236,261	554,372	—1,712	60,543	492,117	150,571
Denver & Salt Lake	255	97,339	34,966	137,465	20,787	18,527	3,417	40,569	5,538	88,838	48,627	.....	Cr. +8,913	57,540	32,850
Duluth, South Shore & Atlantic	627	162,001	90,705	269,951	96,023	37,394	8,734	101,300	14,640	258,091	11,860	666	29,408	—16,882	—81,717
Duluth, Winnipeg & Pacific	181	107,270	17,906	127,300	33,320	36,267	2,349	43,065	5,752	120,753	6,547	.....	6,868	—321	—39,295
Fort Worth & Denver City	454	196,101	114,419	331,104	39,893	42,451	6,775	129,710	15,703	234,532	96,572	—1,013	12,920	82,639	52,789
Georgia	307	147,878	72,672	238,157	27,067	38,544	13,232	103,068	9,157	191,068	47,089	.....	7,213	39,876	46,987
Grand Rapids & Indiana	575	245,891	155,574	436,264	59,180	75,094	10,706	183,868	17,017	345,865	90,399	—489	24,221	65,689	28,866
Great Northern	7,803	4,393,801	1,293,502	6,111,373	1,640,078	713,070	114,466	1,648,301	121,046	4,236,961	1,874,412	38,536	439,947	1,473,001	—514,334
Gulf & Ship Island	308	107,714	29,472	147,131	20,618	32,268	3,173	43,523	9,205	108,787	38,344	152	7,415	31,081	—10,265
Gulf, Colorado & Santa Fe	1,596	675,543	251,367	1,002,785	115,687	182,449	31,451	411,407	42,921	783,915	218,870	.....	34,767	184,103	82,119
Hocking Valley	352	357,619	70,240	476,936	41,240	89,669	8,306	168,175	14,243	321,633	155,303	.....	13,136	142,167	—125,108
Long Island	398	300,866	906,691	1,357,184	136,281	133,297	12,706	487,679	34,259	804,222	552,962	7,768	63,484	497,246	46,455
Midland Valley	380	73,126	39,898	119,845	17,244	21,335	2,082	40,513	6,024	87,198	32,647	.....	6,835	25,812	33,684
Minneapolis & St. Louis	1,586	571,528	164,392	786,899	109,182	139,230	17,779	286,746	18,730	571,667	215,232	—85	36,399	178,748	—32,355
Minneapolis, St. Paul & Sault Ste. Marie	4,102	1,496,993	547,383	2,193,093	361,664	356,217	73,260	738,173	57,584	1,586,898	606,195	11,617	98,702	519,110	—76,443
Missouri, Kansas & Texas System	3,865	1,430,327	714,421	2,312,027	249,348	330,954	61,933	843,278	96,014	1,581,527	730,500	—10,260	111,416	608,824	285,943
Monongahela	67	91,381	2,272	95,757	17,464	6,074	280	22,136	2,098	48,052	47,705	.....	2,100	45,605	—26,016
Nevada Northern	165	126,591	11,455	141,863	26,818	19,548	646	25,064	5,690	77,766	64,097	.....	Cr. +2,371	66,468	3,255
New York Central & Hudson River	3,757	5,165,330	3,210,791	9,466,040	1,344,231	1,564,123	154,771	3,107,037	264,690	6,434,852	3,031,188	3,226	560,136	2,474,278	382,527
New York, Ontario & Western	566	624,953	142,746	809,706	105,301	81,622	10,389	294,513	16,784	508,609	301,097	—1,543	25,762	273,792	11,730
New York, Philadelphia & Norfolk	112	291,264	42,710	362,150	31,613	65,889	3,593	158,317	13,938	273,350	88,800	.....	11,050	77,750	—28,433
Northern Central	472	753,168	212,178	1,037,299	141,955	210,079	14,362	500,085	28,984	895,465	141,834	1,295	37,047	106,082	17,104
Northwestern Pacific	401	124,776	218,684	363,540	51,761	38,046	5,043	118,700	15,395	228,945	134,595	.....	15,559	119,036	8,108
Oregon Short Line	2,120	1,157,937	445,455	1,746,679	249,840	198,743	40,416	407,710	52,611	949,320	797,359	—1,648	115,202	680,509	—87,697
Oregon-Washington R. R. & Nav. Co.	1,915	800,888	446,586	1,338,733	178,013	142,510	43,784	426,774	70,506	861,587	477,146	3,539	74,695	405,990	42,749
Pecos & Northern Texas	570	137,616	36,497	185,440	33,393	33,463	2,625	75,675	5,513	150,669	34,771	.....	5,703	29,068	—4,494
Pennsylvania *Company*	1,750	3,638,266	862,400	5,053,211	666,278	842,268	81,814	1,660,732	186,214	3,437,306	1,615,905	—1,617	274,125	1,340,163	—15,139
Pennsylvania *Railroad*	4,084	10,039,572	3,163,448	14,261,298	1,870,639	2,696,745	166,615	4,887,815	374,881	9,996,695	4,364,603	—83,499	613,073	3,568,031	—296,875
Pere Marquette	2,322	793,132	317,677	1,242,867	392,737	195,098	33,789	527,000	48,660	1,197,284	45,583	898	62,911	—16,430	—14,121
Philadelphia, Baltimore & Washington	717	942,975	672,439	1,810,512	262,908	335,791	26,368	725,463	50,501	1,401,031	409,481	.....	56,234	353,247	32,802
Pittsburgh, Cincinnati, Chic. & St. Louis	1,472	2,198,174	718,854	3,313,415	458,487	630,903	64,771	1,153,974	115,695	2,423,830	889,585	—1,065	163,629	724,891	352,745
Rutland	468	177,729	96,739	316,153	48,917	41,396	9,055	128,904	8,459	236,731	79,422	—55	16,344	63,023	18,425
St. Joseph & Grand Island	319	88,623	26,850	126,426	24,034	10,963	4,885	50,285	16,923	107,090	19,336	29	7,048	12,317	5,908
St. Louis & San Francisco	4,742	2,068,695	949,170	3,250,564	553,454	580,897	76,702	1,100,429	91,954	2,403,436	847,128	.....	117,040	730,088	—533,507
St. Louis, Brownsville & Mexico	518	103,242	67,227	185,331	48,763	28,965	6,900	76,678	12,593	173,899	11,432	.....	4,972	6,460	16,897
St. Louis Merchants' Bridge Terminal	9	.....	423	169,930	29,624	6,870	780	77,861	6,059	121,194	48,736	.....	6,250	42,486	15,054
St. Louis, San Francisco & Texas	244	54,828	29,502	89,966	29,724	17,058	2,291	52,943	4,087	106,103	—16,137	.....	1,476	—17,613	—30,930
St. Louis Southwestern	943	433,946	107,375	573,456	58,325	105,617	25,426	169,744	24,633	383,745	189,711	—1,264	32,076	156,371	—34,176
St. Louis Southwestern of Texas	811	176,529	82,134	283,604	55,598	76,005	11,216	143,252	17,480	303,551	—19,947	—498	15,500	—35,945	—7,942
San Antonio & Aransas Pass	724	190,621	101,930	311,663	57,296	44,914	6,396	161,526	12,769	282,901	28,762	.....	8,563	20,199	25,393
San Pedro, Los Angeles & Salt Lake	1,132	590,536	272,285	899,584	121,118	120,918	33,781	282,778	19,804	578,399	321,185	—768	52,902	267,515	—45,162
Southern	7,010	3,225,311	1,512,279	5,166,593	674,757	1,036,907	197,423	2,032,824	206,641	4,148,552	1,018,041	—20,012	224,857	773,172	—416,071
*Panhandle & Santa Fe Railway Company	179	84,974	17,209	107,320	15,170	22,619	1,492	38,656	4,211	82,148	25,172	.....	2,969	22,203	—7,674
Southern Pacific Co.	6,493	4,961,147	2,458,367	7,973,864	942,368	1,017,827	177,180	2,301,692	205,020	4,644,087	3,329,777	—81,705	523,636	2,724,436	—409,798
Tennessee Central	294	93,845	37,226	139,660	39,754	20,162	5,739	48,415	7,341	121,411	18,249	.....	7,046	11,203	—19,624
Terminal R. R. Ass'n of St. Louis	34	.....	198	210,998	31,472	13,288	982	76,863	5,813	128,418	82,580	12,399	27,104	67,875	11,225
Texas & Pacific	1,885	813,666	363,179	1,271,425	123,134	262,323	47,742	589,913	43,518	1,066,630	204,795	—22,415	88,800	93,580	176,362
Toledo, St. Louis & Western	451	334,327	34,465	396,220	35,974	38,135	20,289	132,974	8,408	235,780	160,440	.....	19,536	140,904	56,435
Trinity & Brazos Valley	463	91,078	40,542	140,071	40,432	22,696	9,373	63,709	10,783	146,993	—6,922	.....	4,900	—11,822	89,806
Ulster & Delaware	129	72,013	35,397	113,053	12,009	11,735	4,403	41,787	8,904	78,838	34,215	—35	2,629	31,551	—1,887
Union R. R. of Baltimore	9	112,824	21,732	136,431	13,159	.....	.....	4,624	2,361	20,144	116,287	.....	6,180	110,107	—7,044
Vandalia	910	591,524	207,506	893,860	131,246	180,383	23,665	335,200	34,684	705,178	188,682	.....	32,291	156,391	63,061
Virginia & Southwestern	240	139,863	13,654	159,038	20,360	35,289	2,007	43,993	4,379	106,028	53,010	.....	6,832	46,178	10,039
Wabash	2,515	1,539,638	608,883	2,337,655	469,224	446,774	99,763	1,052,783	72,765	2,141,309	196,346	—2,619	99,192	94,535	—270,110
West Jersey & Seashore	356	150,444	401,408	584,933	82,404	76,048	10,555	215,669	13,357	398,033	186,900	—2,220	26,960	157,720	26,057
Western Pacific	943	372,438	124,932	511,439	129,429	56,107	30,185	143,341	20,111	379,173	132,266	—2,103	13,420	116,743	—18,502
Western Ry. of Alabama	133	51,239	44,060	108,571	21,653	28,297	5,967	26,963	5,398	88,278	20,293	—77	5,008	15,208	18,332
Wheeling & Lake Erie	459	440,310	47,148	536,409	64,066	79,539	7,691	181,404	22,169	354,869	181,540	—107	29,152	152,281	84,845

*Succeeded Southern Kansas of Texas on June 5, 1914.

REVENUES AND EXPENSES OF RAILWAYS

TWELVE MONTHS OF FISCAL YEAR ENDING JUNE 30, 1914

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance										
		Freight.	Passenger.	Total. inc. misc.	Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.					
Atlanta & West Point	93	$642,663	$493,459	$1,277,668	$176,163	$267,804	$62,893	$400,962	$54,984	$962,806	$314,862	—$63	$82,911	$231,888	—$8,687
Baltimore & Ohio—System	4,478	75,784,287	15,893,721	97,411,441	12,207,191	16,681,986	2,151,887	38,699,493	2,314,335	72,054,892	25,356,549	—885,246	3,226,466	21,244,837	—2,696,441
Belt Ry. Co. of Chicago	21	.....	.....	3,064,677	290,484	308,743	8,050	1,192,456	77,547	1,877,280	1,187,397	.....	121,533	1,065,864	4,083
Bingham & Garfield	27	1,712,682	54,139	1,775,538	128,376	236,830	10,383	267,889	29,207	672,685	1,102,853	.....	35,456	1,067,397	453,615
*Buffalo & Susquehanna R. R. Corp.	253	613,818	40,204	675,823	140,518	206,064	7,206	253,433	38,942	646,163	29,660	.....	15,600	14,060	.....
Buffalo & Susquehanna Ry	91	363,416	97,881	492,920	105,942	216,661	6,308	222,637	34,796	586,344	—93,424	—179	19,500	—113,103	57,099
Butte, Anaconda & Pacific	90	1,223,258	148,541	1,495,391	178,578	259,565	7,651	513,448	45,651	1,004,893	490,498	.....	30,755	459,743	228,616
Chicago & Eastern Illinois	1,283	11,324,292	2,963,222	15,544,286	2,242,580	4,062,880	286,408	5,909,591	467,552	12,969,011	2,575,275	—28,139	630,500	1,916,636	—776,253
Chicago Great Western	1,496	9,943,575	3,205,992	14,260,522	2,024,458	2,367,235	577,744	5,428,497	433,234	10,831,168	3,429,354	—3,249	499,082	2,927,023	—376,328
Chicago, Milwaukee & St. Paul	9,690	65,266,420	18,961,225	91,782,691	10,704,519	13,112,978	1,799,610	33,960,581	1,752,373	61,330,061	30,452,630	260,483	4,106,557	26,606,556	—944,447
Colorado & Southern	1,127	5,619,585	1,472,630	7,608,129	1,071,696	1,380,398	129,454	2,738,654	261,971	5,582,173	2,025,956	—10,114	397,543	1,618,299	—639,321
Delaware & Hudson Co.—R. R. Dept.	881	19,123,445	3,116,624	23,090,060	1,758,090	3,635,231	325,503	8,782,377	808,579	15,309,780	7,780,280	—14,334	660,607	7,105,339	—1,560,843
Denver & Rio Grande	2,583	17,058,080	5,077,408	23,167,051	3,393,968	4,245,325	497,432	7,249,241	632,230	16,018,196	7,148,855	—16,148	1,009,143	6,123,564	—326,996
Denver & Salt Lake	238	817,055	338,110	1,215,361	224,175	202,190	23,986	411,674	54,786	916,811	298,550	.....	36,588	261,962	35,596
Duluth, South Shore & Atlantic	627	2,091,597	1,104,471	3,412,575	795,084	431,058	105,707	1,294,558	137,590	2,763,997	648,578	4,655	247,443	405,790	—67,598
Duluth, Winnipeg & Pacific	181	1,435,365	276,885	1,743,894	290,007	341,458	25,939	652,272	68,894	1,378,570	365,324	.....	87,721	277,603	—120,727
Fort Worth & Denver City	454	3,034,451	1,449,709	4,738,723	585,874	713,339	85,139	1,960,636	188,673	3,533,661	1,205,062	—6,842	182,073	1,016,147	—434,441
Georgia	307	2,165,985	922,739	3,327,444	334,462	573,517	143,357	1,474,621	106,116	2,632,073	695,371	.....	37,261	658,110	335,976
Grand Rapids & Indiana	575	3,266,527	1,858,900	5,538,484	756,011	902,258	145,781	2,429,768	192,284	4,426,102	1,112,382	—5,979	289,710	816,693	—47,842
Great Northern	7,780	55,025,016	15,224,463	75,441,366	12,705,906	9,825,353	1,360,564	21,195,668	1,431,782	46,519,273	28,922,093	159,250	4,790,572	24,290,771	—4,379,805
Gulf & Ship Island	308	1,476,019	391,111	1,995,766	269,260	402,411	35,474	564,516	104,182	1,375,843	619,923	350	89,917	530,356	—124,597
Gulf, Colorado & Santa Fe	1,596	9,063,145	3,002,053	12,882,258	2,016,922	2,090,266	318,582	5,126,731	407,232	9,959,733	2,922,525	.....	583,331	2,339,194	—696,715
Hocking Valley	352	5,601,382	910,311	7,021,145	668,455	1,460,653	107,576	2,391,640	175,422	4,803,746	2,217,399	.....	451,137	1,766,262	—589,638
Long Island	398	3,396,181	7,901,926	12,625,291	1,568,047	1,443,972	172,149	5,521,806	337,798	9,043,772	3,581,519	2,901	774,733	2,809,687	—272,804
Midland Valley	380	1,043,000	486,053	1,617,566	359,079	308,143	29,002	572,357	75,370	1,343,951	273,615	1,014	78,983	195,646	14,216
Minneapolis & St. Louis	1,586	7,142,498	1,920,273	9,620,884	1,300,283	1,415,997	214,126	3,721,029	240,378	6,891,813	2,729,071	—537	410,361	2,318,173	—324,258
Minneapolis, St. Paul & Sault Ste. Marie	4,003	20,372,247	6,664,869	28,775,634	3,593,529	4,441,761	661,636	9,601,472	643,540	18,941,938	9,833,696	118,268	1,182,367	8,769,597	—2,931,584
Missouri, Kansas & Texas System	3,825	20,228,337	9,105,242	31,521,188	4,560,258	3,908,858	737,766	12,245,766	1,217,009	22,669,657	8,851,531	—107,977	1,499,521	7,244,033	—950,285
Monongahela	67	1,371,112	32,970	1,426,965	181,230	82,465	4,862	299,737	26,019	594,313	832,652	.....	27,200	805,452	—171,580
Nevada Northern	165	1,572,285	147,310	1,761,197	220,955	236,025	5,591	402,610	60,527	925,708	835,489	.....	81,242	754,247	—15,458
New York Central & Hudson River	3,754	65,219,132	34,974,165	112,705,211	16,064,579	22,394,718	2,133,695	42,154,292	2,971,059	85,718,343	26,986,868	—264,709	6,206,869	20,515,290	—4,540,822
New York, Ontario & Western	566	6,883,721	1,709,369	9,040,812	1,272,562	1,564,090	124,204	3,531,879	200,188	6,692,923	2,347,889	—27,467	238,562	2,081,860	—610,038
New York, Philadelphia & Norfolk	112	3,030,331	512,834	3,812,826	336,569	803,245	57,088	1,734,661	169,184	3,100,747	712,079	.....	105,550	606,529	—235,585
Northern Central	472	9,721,700	2,513,260	13,124,536	1,709,423	2,949,234	198,012	6,502,946	335,456	11,695,071	1,429,465	8,624	485,485	952,604	—522,339
Northwestern Pacific	401	1,434,809	2,039,742	3,745,805	586,859	509,277	49,902	1,358,020	149,301	2,653,359	1,092,446	.....	182,852	909,594	—52,681
Oregon Short Line	2,069	15,557,631	4,971,573	22,005,594	2,760,862	2,762,538	438,296	5,560,143	646,109	12,167,948	9,837,646	—34,062	1,516,784	8,286,800	—864,065
Oregon-Washington R. R. & Nav. Co.	1,915	11,050,311	4,937,434	17,227,641	2,410,891	2,051,503	577,322	5,962,364	723,159	11,725,239	5,502,402	—52,093	1,298,818	4,151,491	—545,622
Pecos & Northern Texas	511	1,806,641	452,932	2,396,037	261,325	437,098	33,023	773,463	79,427	1,584,336	811,701	.....	88,524	723,177	22,450
Pennsylvania *Company*	1,750	44,645,619	10,140,433	60,779,683	8,503,754	11,484,168	1,040,841	23,090,702	1,588,695	45,708,160	15,071,523	—107,948	3,284,867	11,678,708	—2,599,907
Pennsylvania *Railroad*	4,084	128,255,509	37,797,207	178,963,562	23,663,160	36,762,225	2,436,088	66,647,866	4,540,509	134,049,848	44,913,714	—1,778,769	7,352,502	35,782,443	—3,578,575
Pere Marquette	2,322	11,044,099	3,912,093	16,431,939	2,979,122	6,265,461	411,910	7,250,494	519,136	17,426,123	—994,184	—124,793	643,168	—1,762,145	—4,750,586
Philadelphia, Baltimore & Washington	717	10,132,245	8,347,057	20,656,989	3,205,080	3,857,078	378,470	9,107,227	561,952	17,109,807	3,547,182	.....	656,326	2,890,856	—495,694
Pittsburgh, Cincinnati, Chic. & St. Louis	1,472	28,568,626	8,772,624	42,096,662	6,157,331	8,558,896	865,876	16,578,818	1,040,865	33,201,786	8,894,876	—8,875	1,906,194	6,979,807	—853,970
Rutland	468	1,987,024	1,234,252	3,714,789	439,237	682,136	109,664	1,513,947	80,333	2,825,317	889,472	176	207,081	682,567	48,579
St. Joseph & Grand Island	319	1,129,677	347,504	1,610,060	326,115	240,915	60,181	696,054	83,808	1,407,073	202,987	21	86,482	116,526	49,599
St. Louis & San Francisco	4,742	28,654,454	10,830,575	42,458,880	7,225,913	7,091,885	879,028	14,671,587	1,205,297	31,073,710	11,385,170	.....	1,415,349	9,969,821	—3,406,021
St. Louis, Brownsville & Mexico	518	1,571,407	871,210	2,660,633	592,927	292,475	60,903	1,027,516	134,123	2,107,944	552,689	.....	88,701	463,988	—55,597
St. Louis Merchants' Bridge Terminal	9	.....	4,117	1,921,263	362,182	123,825	8,816	1,040,211	75,034	1,610,068	311,195	.....	73,150	238,045	—131,980
St. Louis, San Francisco & Texas	244	1,017,488	373,837	1,480,211	329,414	238,363	29,385	658,314	66,431	1,321,907	158,304	.....	18,368	139,936	—124,838
St. Louis Southwestern	924	6,316,085	1,451,255	8,212,255	814,739	1,510,546	346,840	2,145,011	343,754	5,160,890	3,051,365	—15,473	389,625	2,646,267	—720,313
St. Louis Southwestern of Texas	811	2,979,058	1,210,296	4,532,300	1,105,296	1,125,155	158,962	1,971,717	245,697	4,606,827	—74,527	—3,261	212,262	—290,050	—523,286
San Antonio & Aransas Pass	724	3,048,094	1,336,104	4,648,197	1,025,608	724,607	76,818	2,013,659	144,064	3,984,756	663,441	.....	160,563	502,878	—691,025
San Pedro, Los Angeles & Salt Lake	1,133	6,908,013	3,013,609	10,626,703	1,294,935	1,735,944	382,877	3,575,299	225,921	7,214,976	3,411,727	—35,329	532,484	2,843,914	—125,957
Southern	7,033	45,077,048	19,004,783	69,533,697	9,098,912	11,974,090	2,243,556	25,051,780	2,202,836	50,571,174	18,962,523	27,824	2,679,389	16,310,958	—1,544,757
†Panhandle & Santa Fe Railway Company	179	1,102,550	187,260	1,350,819	149,310	269,585	18,596	429,266	44,896	911,653	439,166	.....	45,011	394,155	—141,294
Southern Pacific Co.	6,457	55,182,071	30,018,598	92,038,088	10,734,461	13,043,383	1,917,808	26,569,458	2,726,030	54,991,140	37,046,948	886,999	5,325,670	32,608,277	—5,158,621
Tennessee Central	294	1,172,923	436,547	1,707,339	336,986	205,029	68,998	600,585	87,651	1,299,249	408,090	.....	53,763	354,327	—40,139
Terminal R. R. Ass'n of St. Louis	34	.....	2,459	2,811,293	464,720	221,939	11,188	1,107,260	68,376	1,873,483	937,810	99,991	335,811	701,990	—183,604
Texas & Pacific	1,885	12,712,344	4,671,610	18,652,685	2,215,514	2,976,734	460,219	8,064,579	520,961	14,238,007	4,414,678	—62,536	757,341	3,594,801	1,022,655
Toledo, St. Louis & Western	451	3,922,725	369,455	4,588,121	469,619	592,935	201,139	1,764,263	110,190	3,138,146	1,449,975	.....	204,837	1,245,138	—10,266
Trinity & Brazos Valley	463	1,666,816	528,311	2,302,679	621,234	355,063	119,529	1,145,854	144,822	2,386,502	—83,823	.....	66,167	—149,990	—287,176
Ulster & Delaware	129	668,831	351,014	1,076,217	141,306	148,014	21,787	471,687	52,693	835,487	240,730	409	40,129	201,010	—70,809
Union R. R. of Baltimore	9	1,336,627	273,304	1,633,774	174,009	.....	7,622	59,080	30,598	271,309	1,362,465	.....	72,161	1,290,304	—210,359
Vandalia	910	7,577,513	2,501,330	11,255,235	1,455,383	2,267,312	312,596	4,535,437	271,471	8,842,199	2,413,036	.....	381,864	2,031,172	—88,690
Virginia & Southwestern	240	1,702,575	181,152	1,939,104	269,328	472,966	26,149	554,322	48,102	1,370,867	568,237	.....	77,410	490,827	11,729
Wabash	2,515	20,199,493	7,201,974	30,022,495	4,028,044	5,640,347	1,032,850	12,865,693	836,899	24,403,833	5,618,662	—55,780	1,044,309	4,518,573	—1,596,649
West Jersey & Seashore	356	1,805,289	4,196,500	6,397,732	1,010,154	1,015,881	182,450	2,727,427	161,963	5,097,875	1,299,857	—39,603	316,850	943,404	—126,115
Western Pacific	939	4,675,940	1,253,731	6,099,573	1,348,591	796,729	337,901	2,213,716	298,954	4,995,891	1,103,682	—27,153	379,259	697,270	—707,792
Western Ry. of Alabama	133	817,671	550,379	1,485,849	266,751	297,883	75,344	423,086	68,287	1,131,351	354,498	—223	59,673	294,602	—2,842
Wheeling & Lake Erie	459	6,544,900	621,034	7,637,345	997,393	1,279,200	110,180	2,662,895	224,873	5,274,541	2,362,804	—1,040	365,831	1,995,933	412,625

*Figures shown here are for period January 1 to June 30, 1914. †Succeeded Southern Kansas Railway Company of Texas on June 5, 1914.

more than their share of the railroads' earnings, as compared to other employees, and we heartily commend the action of the general managers of the roads involved in opposing any further increase for engineers under the present conditions."

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass. Next convention, May 4-7, 1915, Hotel Sherman, Chicago.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Demurrage Commissioner, Boston, Mass. Annual convention in April.

AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—H. C. Boardman, D. L. & W., Hoboken, N. J. Next convention, October 22-24, Washington, D. C.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, Illinois Central, East St. Louis, Ill. Annual meeting, May 21-24, 1915, Richmond, Va.

AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Annual meeting, September 15-16, Boston, Mass.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—E. H. Harman, Room 101, Union Station, St. Louis, Mo. Next convention, August 20-21, New York.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—E. B. Burritt, 29 W. 39th St., New York. Annual convention, October 12-16, Atlantic City, N. J.

AMERICAN ELECTRIC RAILWAY MANUFACTURERS' ASSOCIATION.—H. G. McConnaughy, 165 Broadway, New York. Meetings with American Electric Railway Association.

AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York. Semi-annual meeting, November 18, Chicago.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Next convention, October 20-22, 1914, Los Angeles, Cal.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 900 S. Michigan Ave., Chicago. Next convention, March 16-18, 1915, Chicago.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Annual meeting, June, 1915.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—A. R. Davis, Central of Georgia, Macon, Ga. Annual meeting, July, 1915.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. W. Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except, June, July and August, 220 W. 57th St., New York.

AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—J. R. Wemlinger, 11 Broadway, New York. Regular meetings, 2d Thursday in month, at 2 P. M., 11 Broadway, New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Annual meeting, December 1-4, 1914, New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, B. & O., Mt. Royal Sta., Baltimore, Md. Next convention, January 19-21, 1915, Chicago.

ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—E. R. Woodson, 1300 Pennsylvania Ave., N. W., Washington, D. C. Annual convention, April 28, 1915, Atlanta, Ga.

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS.—George W. Lyndon, 1214 McCormick Bldg., Chicago. Annual meeting, second Tuesday in October, New York.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—C. W. Egan, B. & O., Baltimore, Md. Annual meeting, 3rd week in May, 1915, Galveston, Tex.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Annual convention, October 26-30, 1914, Chicago.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, Soo Line, 112 West Adams St., Chicago. Annual meeting, June 22-25, Rochester, N. Y.

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York. Next meeting, December 8-9, 1914, Richmond, Va.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—L. D. Mitchell, Detroit Graphite Co., Chicago, Ill. Meetings with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawler Ave., Chicago. Regular meetings, 2d Monday in month, except July and August, Lytton Bldg., Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual meeting, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—Edw. J. Dugan, P. O. Box 654, St. Paul, Minn.; Regular meetings, 2d Monday, except June, July, August and September, Old State Capitol Bldg., St. Paul.

ENGINEERS' SOCIETY OF PENNSYLVANIA.—Edw. R. Dasher, Box 75, Harrisburg, Pa. Regular meetings, 1st Friday after 10th of each month, except July and August, 31 So. Front St., Harrisburg, Pa.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer R. Hiles, Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, R. F. & P., Richmond, Va. Annual meeting, June 16, 1915, Chicago.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.

INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, 11, Rue de Louvain, Brussels, Belgium. Next convention, June 23 to July 6, 1915, Berlin.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—C. G. Hall, C. & E. I., 922 McCormick Bldg., Chicago. Annual meeting, May 17-20, 1915, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 829 W. Broadway, Winona, Minn. Next convention, July 14-17, 1915, Sherman House, Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, Lima, Ohio. Next convention, August 18-20, Hotel Wisconsin, Milwaukee, Wis.

MAINTENANCE OF WAY & MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—T. I. Goodwin, C. R. I. & P., Eldon, Mo. Next convention, November 17-19, 1914, Detroit, Mich.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York. Annual convention, May, 1915.

MASTER CAR & LOCOMOTIVE PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—A. P. Dane, B. & M., Reading, Mass. Next convention, September 8-11, Nashville, Tenn.

MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Annual meeting, June, 1915.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Next convention, March 15-19, 1915, Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meetings, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—E. Frankenberger, 623 Brisbane Bldg., Buffalo, N. Y. Meetings monthly.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, Union Station, Peoria, Ill. Regular meetings, 2d Thursday in month, Jefferson Hotel, Peoria.

RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Friday in month, Kansas City.

RAILROAD MASTER TINNERS, COPPERSMITHS AND PIPEFITTERS' ASSOCIATION.—U. G. Thompson, C. & E. I., Danville, Ill. Annual meeting, May, 1915.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 30 Church St., New York. Annual meeting, December 10, 1914, Waldorf-Astoria Hotel, New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Monongahela House, Pittsburgh.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. Scribner, 1021 Monadnock Block, Chicago. Meetings with Association of Railway Electrical Engineers.

RAILWAY FIRE PROTECTION ASSOCIATION.—C. B. Edwards, Fire Ins. Agt., Mobile & Ohio, Mobile, Ala. Annual meeting, October 6, 1914, Washington, D. C.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Times Bldg., Bethlehem, Pa. Annual meeting, September 22-24, 1914, Bluff Point, N. Y.

RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, L. S. & M. S., Box C, Collinwood, Ohio. Annual meeting, May, 1915.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 2136 Oliver Bldg., Pittsburgh, Pa. Meetings with M. C. B. and M. M. Associations.

RAILWAY TELEGRAPH & TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 50 Church St., New York. Meetings with Association of Railway Telegraph Superintendents.

RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—L. C. Ryan, C. & N. W., Sterling, Ill. Next convention, September 8-10, 1914, Chicago.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SALT LAKE CITY TRANSPORTATION CLUB.—R. E. Rowland, Hotel Utah Bldg., Salt Lake City, Utah. Regular meetings, 1st Saturday of each month, Salt Lake City.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, 3868 Park Ave., New York. Meeting with annual convention Railway Signal Association.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—Carl Nyquist, C. R. I. & P., La Salle St. Sta., Chicago. Annual meeting, September 15-17, Hotel Aspinwall, Lenox, Mass.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. Ry., Atlanta, Ga.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 A. M., Candler Bldg., Atlanta.

TOLEDO TRANSPORTATION CLUB.—J. S. Marks, Agent, Interstate Despatch, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillsburn, N. Y. Meetings with Roadmasters' and Maintenance of Way Association.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Waldorf-Astoria, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie R. R., Pittsburgh, Pa. Meetings bimonthly, Pittsburgh. Annual meeting, 2d Monday in June.

TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library Bldg., St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.

TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7122 Stewart Ave., Chicago. Annual meeting, June 15, 1915, Minneapolis, Minn.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, Superintendent's office, L. S. & M. S., Detroit, Mich. Meetings monthly, Normandie Hotel, Detroit.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y. Next meeting, September 15-18, Hotel Sherman, Chicago.

UTAH SOCIETY OF ENGINEERS.—Frank W. Moore, Newhouse Bldg., Salt Lake City, Utah. Regular meetings, 3d Friday in month, except July and August, Consolidated Music Hall, Salt Lake City.

WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Tuesday in month, except June, July and August, Karpen Bldg., Chicago.

WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings.

Traffic News

It has been announced informally in Washington that the Panama Canal will be open tomorrow, August 15, for the passage of vessels not needing more than 30 ft. of water.

The railroads belonging to the Western Passenger Association have decided to make no more special excursion rates locally in states where two-cent fares are fixed by statute. This decision was reached after the receipt of an application for special rates to the Wisconsin State Fair.

The Pennsylvania Railroad announced last week that its agent at Liverpool had been instructed to provide Americans in England, marooned on account of the war, with money for their immediate needs. The railroad will cash letters of credit, or if passengers are without funds will accept their own obligations. Prospective passengers are to be informed also that the Pennsylvania will carry them to their destinations on their arrival at New York or Philadelphia. The other principal trunk line railroads, after a conference in New York City, telegraphed to the London Relief Committee, that all the lines would afford similar accommodations to passengers arriving at New York.

Car Surpluses and Shortages

Arthur Hale, chairman of the committee on relations between railroads of the American Railway Association, in presenting statistical bulletin No. 173, giving a summary of car surpluses and shortages by groups from April 1, 1913, to August 1, 1914, says: The total surplus on August 1, 1914, was 198,998 cars; on July 15, 1914, 228,384 cars, and on August 1, 1913, 69,716 cars.

The total surplus has decreased approximately 29,000 cars in the past two weeks, and stands at 198,998, the highest figure for this season of the year since 1909.

The box car surplus decreased approximately 13,600 cars, the largest part of which decrease is in the grain states and on the Pacific coast. There is a heavy increase in surplus box cars on the Canadian roads. The difficulty in securing vessels for export shipment has doubtless contributed in tying up a large number of cars at the ports.

The total shortage on August 1, 1914, was 2,333 cars; on July 15, 1914, 1,843 cars, and on August 1, 1913, 11,261 cars.

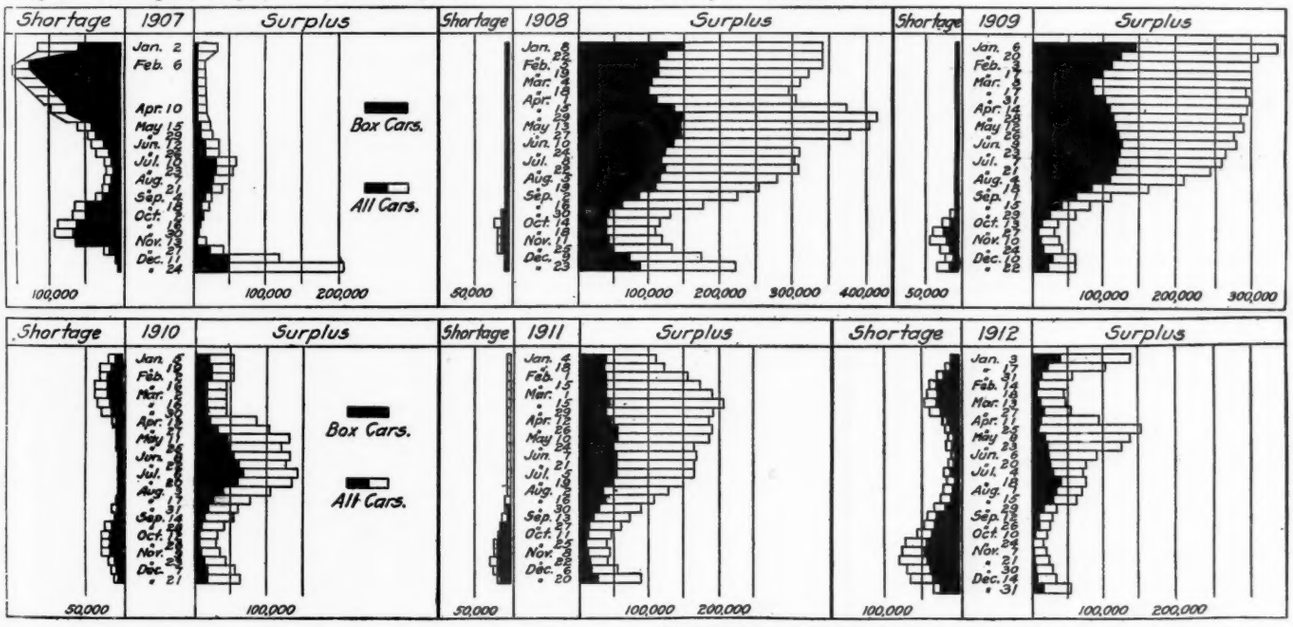
The shortage of 2,333 cars is about 500 greater than on July 15, but this shortage is trifling in any one group.

The accompanying table gives car surplus and shortage figures by groups for the last period covered in the report and the diagram shows total bi-weekly surpluses and shortages from 1907 to 1914.

CAR SURPLUSES AND SHORTAGES

Date	No. of roads.	Surpluses: Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.	Shortages: Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.
Group *1.—August 1, 1914	7	1,639	481	1,281	642	4,043	0	0	0	14	14
" 2.— " 1, 1914	30	2,972	187	17,718	7,601	28,478	0	6	0	0	6
" 3.— " 1, 1914	32	2,969	579	41,557	3,950	49,055	149	57	0	423	629
" 4.— " 1, 1914	11	4,368	807	5,447	1,264	11,886	50	0	0	0	50
" 5.— " 1, 1914	22	1,400	418	3,965	2,407	8,190	214	14	0	30	258
" 6.— " 1, 1914	28	17,665	1,258	6,135	6,251	31,309	446	135	0	100	681
" 7.— " 1, 1914	4	2,460	63	984	1,059	4,566	0	0	0	50	50
" 8.— " 1, 1914	16	5,749	244	1,807	3,410	11,210	293	0	82	0	375
" 9.— " 1, 1914	14	824	75	275	809	1,983	6	8	28	12	54
" 10.— " 1, 1914	19	7,554	1,310	3,115	8,316	20,295	129	66	0	21	216
" 11.— " 1, 1914	5	24,771	543	0	3,669	27,983	0	0	0	0	0
Total	188	72,371	5,965	82,284	38,378	198,998	1,287	286	110	650	2,333

*Group 1 is composed of New England lines; Group 2—New York, New Jersey, Delaware, Maryland and Eastern Pennsylvania lines; Group 3—Ohio, Indiana, Michigan and Western Pennsylvania lines; Group 4—West Virginia, Virginia, North and South Carolina lines; Group 5—Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida lines; Group 6—Iowa, Illinois, Wisconsin and Minnesota lines; Group 7—Montana, Wyoming, Nebraska, North Dakota and South Dakota lines; Group 8—Kansas, Colorado, Missouri, Arkansas and Oklahoma lines; Group 9—Texas, Louisiana and New Mexico lines; Group 10—Washington, Oregon, Idaho, California, Nevada and Arizona lines; Group 11—Canadian lines.



Car Surpluses and Shortages, 1907 to 1914

Commission and Court News

INTERSTATE COMMERCE COMMISSION

Rates on Paper to Muskogee, Okla.

Phoenix Printing Company et al. v. Missouri, Kansas & Texas et al. Opinion by Commissioner McChord:

The commission finds that the rates on news print paper from Minnesota mills and Wisconsin mills to Muskogee, Okla., are unreasonable as compared with the rates to Kansas City, Mo., and various other points in Missouri and Kansas and in western trunk line territory. Giving Muskogee the same rate per ton-mile as Joplin, Mo., the total rate to Muskogee would be about 35 cents per 100 lb., instead of 46 cents, the present rate. It is, therefore, held that the rate to Muskogee should not exceed 35 cents from the Minnesota mills or 34 cents from the Wisconsin mills, and reparation is awarded for the difference in the case of certain shipments. (31 I. C. C., 289.)

Rail and Water Rates to Bowling Green, Ky.

Bowling Green Business Men's Protective Association of Bowling Green, Ky., v. Evansville & Bowling Green Packet Company et al. Opinion by Commissioner McChord:

The commission finds that the rail line carriers should establish through routes and joint rates from St. Louis, Chicago, Detroit, Indianapolis, Pittsburgh, Cleveland, Syracuse and New York via Evansville, Ind., to Bowling Green in connection with the Evansville & Bowling Green Packet Company, observing as nearly as possible the custom that rail and water rates should be lower than all rail rates. The defendants are to submit to the commission within sixty days a tentative scale of joint through rates showing the manner and form in which the same are to be established. (31 I. C. C., 301.)

Rates on Blackstrap Molasses

Louisiana Sugar Planters' Association v. Illinois Central et al. Opinion by Commissioner Clements:

It is alleged that a rate on molasses of 21 cents per 100 lb. from New Orleans and other Louisiana points to St. Louis and East St. Louis is discriminatory as compared with a special import rate of 15 cents on blackstrap molasses from New Orleans and certain other Louisiana points in the immediate vicinity of that point to the same points of destination, the latter rate being restricted in its application as follows: "Molasses, blackstrap, low grade, in tank cars (when imported from foreign countries, including insular possessions of the United States, unloaded into storage tanks and reshipped from storage tanks or transferred direct from vessel to tank cars), estimated weight 11.7 lb. per gallon, agreed to be of value of 8 cents or less per gallon, c. l. minimum weight capacity of tank."

The commission finds that there may properly be some difference between the import rate and the domestic rate on blackstrap molasses, but it believes that in this case the difference between the rates on the two kinds of shipments is too great and that any greater difference than three cents per 100 lb. between the import rate and the domestic rate from New Orleans to St. Louis and East St. Louis is discriminatory against the domestic product; it also holds that the usual relation should be maintained between the rates to St. Louis and East St. Louis and the rates to the other destinations involved. The commission also concludes, in view of the very small risk of loss or damage in the transportation of blackstrap molasses in tank cars, etc., that the difference of six cents between the unconditional rate on imported blackstrap and the special rate based on agreed value is unreasonable and that the difference ought not to be more than two cents per 100 lb. If imported blackstrap is to take a special rate based on agreed value, domestic blackstrap is equally entitled to such a special rate. A special rate on domestic blackstrap should bear the same relation to the unconditional rate on domestic blackstrap that the special rate on the imported product bears to the unconditional rate. (31 I. C. C., 311.)

STATE COMMISSIONS

Discrimination by Use of Private Cars

In an opinion by Commissioner Johnson, handed down August 6, the Pennsylvania Public Service Commission holds it to be unlawful and inequitable for the rate to be lower on coal shipped in producers' cars than when shipped in cars belonging to the carrier.

The opinion is on a complaint filed by the Pennsylvania Rubber Company and others against the Pennsylvania Railroad and concerning the rates on coal from Penn, Biddle, Irwin and Hahntown to Jeannette and Grapeville.

Most of the rates which were put into effect by the carrier on June 1, 1914, and which were very much higher than former rates (in shippers' cars) are declared reasonable and the service performed for the rates charged is characterized as a line haul instead of a switching movement.

The opinion says that the granting of a special rate on coal when moved in shippers' cars enables certain buyers of coal mined at the collieries of the Westmoreland Coal Company to obtain an advantage in rates that other buyers at the same collieries could not secure. The owners of the collieries, who have the power to determine whether private cars or railroad cars shall be used, can decide who shall enjoy the lower rate, and who shall not. The opinion also declares that in determining whether particular rates are reasonable, and especially in deciding whether particular rates are unjustly discriminatory or unduly preferential, it is discretionary with the commission whether a valuation of any or all of the property of a public service company shall be made; and, if the commission decides that a valuation is necessary, the statute prescribes what the commission *may*, not what it *must* consider, in arriving at a fair valuation.

A railroad company is entitled to receive from its entire business a fair return upon a reasonable value of the property which at the time is being used for the public, but this broad question does not necessarily arise in deciding whether the particular rate applying to but one commodity or to but few articles is unjustly discriminatory or preferential. The commission adds that if a valuation were required to decide upon every complaint regarding local rates or fares, the state would be powerless to afford effective relief to complainants.

The commission thinks that the rate to Grapeville and Biddle should not be higher than the rate to Jeannette, and orders a reduction from 25 cents to 20 cents a ton; and the rate of 30 cents a ton from Hahntown to Jeannette is reduced to 25 cents a ton. The rates of 15 cents a ton from Penn to Jeannette and Grapeville and 20 cents a ton from Biddle to Jeannette are held to be reasonable.

All of the rates in question are for very short distances; so short that it was claimed that switching rates ought to apply. The low rate of $2.50 per car was made years ago, when cars were much smaller than now. The distance being very short, the car-service at the loading point (on shipper's premises) and at the delivering point (on consignees' premises) was, of course, worth much more than the car-service during the time the car was in motion, a fact which apparently may be taken as a partial explanation of the very low transportation rate.

COURT NEWS

Railroad Not Responsible for Avalanche

The Supreme Court of the State of Washington holds that the snowslide at Wellington, in that state, on March 1, 1910, when two Great Northern trains were carried down the mountainside and wrecked and 92 persons were killed, was caused by an act of Providence. This is the ruling of the court in the case of William Topping, of Ashland, Ohio, by his guardian, against the Great Northern Railway. The jury in the lower court allowed the boy $20,000 damages for the death of his father, who was killed in the wreck, but the Supreme Court says that the railroad cannot be held responsible, and the lower court is reversed.

Grain Elevators in Russia.—The Russian Imperial Senate has approved the construction of 58 grain elevators in the Cossack provinces of the North Caucasus.

Railway Officers

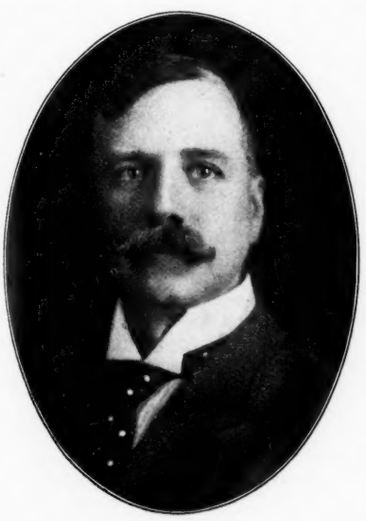
Executive, Financial, Legal and Accounting

Howard Elliott, chairman of the board of directors of the New York, New Haven & Hartford, with headquarters at Boston, Mass., has been elected also president, succeeding James H. Hustis, resigned to become president of the Boston & Maine.

Frank Scott, whose appointment as vice-president and treasurer in charge of all financial matters of the Grand Trunk and the Grand Trunk Pacific, with headquarters at Montreal, Que., has already been announced in these columns, was born on December 24, 1862, at Montreal, Que. He began railway work in 1879, as a clerk in the audit department of the Grand Trunk, and from 1881 to 1890 was successively clerk and chief clerk in the treasurer's office of that road. In 1891 he was appointed secretary of the audit board and purchasing committee, and from 1893, to 1900, was assistant treasurer of the same road. He was appointed treasurer of the Grand Trunk in 1901, and in 1906, became treasurer also of Grand Trunk Pacific, which position he held at the time of his recent appointment as vice-president and treasurer of the same roads as above noted. Mr. Scott is also a member of the board of directors of the Grand Trunk Pacific, and is a past president of the Society of Railway Financial Officers of America.

F. Scott

Walter Hardman Ardley, who has been appointed controller in charge of all accounting of the Grand Trunk and the Grand Trunk Pacific, with headquarters at Montreal, Que., has already been announced in these columns, was born on April 24, 1858, in London, Eng., and was educated in the City of London College. He began railway work on November 5, 1884, as a clerk in the general auditor's office of the Grand Trunk and has been in the continuous service of that road ever since. In November, 1893, he was appointed chief clerk and general bookkeeper, and from December, 1907, to the following August was auditor of disbursements. He then served for four months as acting general auditor, and on December 31, 1908, was appointed general auditor of the Grand Trunk and the Grand Trunk Pacific, which position he held at the time of his recent appointment as controller of the same roads, as above noted. Mr. Ardley was recently chosen a member of the board of directors of the Grand Trunk Pacific.



W. H. Ardley

The following are appointed officers of the receivers of the Chicago, Peoria, & St. Louis, effective August 1: W. C. Hurts, general manager; H. W. Berger, auditor; F. J. Wilson, treasurer, and P. B. Warren, general counsel; all with headquarters at Springfield, Ill.

Frederic A. Delano, president of the Chicago, Indianapolis & Louisville, has resigned to accept an appointment on the Federal Reserve Board. He will be vice-governor of the board and will have headquarters at Washington, D. C. A portrait and sketch of Mr. Delano were published in the *Railway Age Gazette* of January 2, 1914, page 29.

William C. Tomkins, formerly secretary to vice-president of the Grand Trunk and the Grand Trunk Pacific at Montreal, Que., has been appointed assistant to vice-president of both roads; James A. Yates, chief clerk to the treasurer, has been appointed assistant treasurer, and G. R. Martin has been appointed assistant auditor of disbursements, all with headquarters at Montreal.

Operating

W. S. Hall, trainmaster of the Canadian Pacific, at Cranbrook, B. C., has been appointed trainmaster, with office at Red Deer, Alta., and C. W. Fisher, trainmaster at Strathcona, has been appointed chief train despatcher, with headquarters at Edmonton.

Traffic

W. McN. Knapp has been appointed traveling freight agent of the Central of Georgia, with headquarters at Savannah, Ga.

Guy H. May has been appointed traveling passenger agent of the Tennessee Central, with headquarters at Knoxville, Tenn.

S. G. Lutz, traffic manager of the Minneapolis & St. Louis at Minneapolis, Minn., has been appointed general traffic manager of the Chicago & Alton, with headquarters at Chicago. Mr. Lutz was born December 8, 1868, in Illinois and was graduated from Western College, Toledo, Ohio, in 1887. He began railway work in November, 1890, as a stenographer in the traffic department of the Iowa Central, and subsequently filled various clerical positions until September, 1894, when he became chief clerk in the freight traffic department. From January, 1898, to April, 1904, he was assistant general freight agent of that road, and was then until December, 1908, assistant general freight agent of the Minneapolis & St. Louis. He was freight traffic manager of both roads from December, 1908, to December, 1909, when he was appointed general freight agent of those roads and the Chicago & Alton and the Toledo, St. Louis & Western at Chicago. In November, 1910, Mr. Lutz was made traffic manager of the Minneapolis & St. Louis, which absorbed the Iowa Central, which position he resigned on August 1 to become general traffic manager of the Chicago & Alton, as above noted.

S. G. Lutz

George M. Henry has been appointed general passenger agent of the Detroit, Toledo & Ironton, with office at Detroit, Mich.

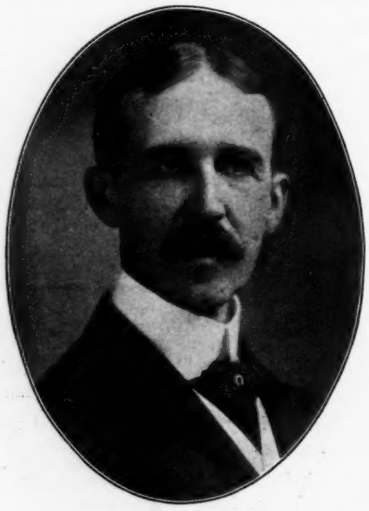
F. W. Lyons has been appointed commercial agent of the Lehigh Valley, with headquarters at Hazleton, Pa., succeeding H. E. Dengler, transferred.

H. A. Fidler, traffic manager of the Big Sandy & Kentucky River at Ashland, Ky., has been appointed assistant general freight agent of the Detroit, Toledo & Ironton, with headquarters at Ironton, Ohio.

F. B. Townsend, assistant general freight agent of the Minneapolis & St. Louis, has been appointed traffic manager, with headquarters at Minneapolis, Minn., succeeding S. G. Lutz, resigned. A. B. Cutts, assistant traffic manager, has been appointed general passenger agent, and D. M. Denison, assistant general freight agent, has been appointed general freight agent, both with headquarters at Minneapolis.

Purchasing

W. G. Phelps, the new purchasing agent of the Pennsylvania Lines West of Pittsburgh, with headquarters at Pittsburgh, Pa., was born at La Porte, Ind., and was educated in the public and private schools of his native town and of Valparaiso. From 1877, to 1884, Mr. Phelps was telegraph operator and agent on the Vandalia Railroad, and then left the service of that company. On November 5, 1888, he returned to the service of the Vandalia as a clerk in the general freight office at St. Louis, Mo. He was appointed chief clerk to the fourth vice-president of the Pennsylvania Lines West of Pittsburgh on June 9, 1901, and was promoted to assistant purchasing agent on January 1, 1913, with headquarters at Pittsburgh, which position he held at the time of his appointment on June 1 as purchasing agent of the same road, as above noted.



W. G. Phelps

Engineering and Rolling Stock

T. E. White has been appointed supervisor of track, District No. 1, of the Louisiana & Arkansas, with headquarters at Minden, La., succeeding J. T. Cherry, resigned.

Alonzo G. Kinyon, whose appointment as superintendent of locomotive operation of the Seaboard Air Line has been announced in these columns, was born at Amboy, Ill., on July 12, 1867. He entered railway service in 1888 as a fireman on the Chicago, Milwaukee & St. Paul, later becoming an engineman. A few months before he left the service in 1901 he entered the railway department of the International Correspondence Schools and was respectively compound locomotive instructor, air brake instructor, and combustion and fuel economy instructor. He resigned in 1905 to engage in other business, but in 1906 returned to railway work as road foreman of engines on the Southern Railway, where he remained until June 1, 1907. In November, 1910, he was appointed special instructor of fuel economy of the Buffalo, Rochester & Pittsburgh, but left about one year later to become superintendent of combustion and fuel economy instruction with the International Correspondence Schools. On March 1, 1911, Mr. Kinyon entered the railway supply field as chief traveling engineer of the Hanna Locomotive Stoker Company, Cincinnati, Ohio. On April 1, 1912, however, he left to accept a similar position with the Westinghouse Air Brake Company, in connection with the Street stoker. This position was abolished about one year later, whereupon he became locomotive fuel engineer of the Clinchfield Fuel Company, Spartanburg, S. C., with which company he remained until July 1, when he took up his present work.

A. G. Kinyon

J. E. Epler, assistant to the general manager of the Chicago & Eatsern Illinois, has been appointed superintendent of motive power, with headquarters at Danville, Ill., to succeed J. H. Tinker, resigned, and the former office is abolished.

A. J. Ironsides, district master mechanic on the Manitoba division of the Canadian Pacific, at Saskatoon, Sask., has been appointed district master mechanic of the Alberta division. C. Flint has been appointed resident engineer, and H. Marshall, bridge and building master at Saskatoon, Sask., has been appointed bridge and building master, all with headquarters at Edmonton, Alta.

OBITUARY

Edward P. Amory, secretary of the Western Railroad Association, at Chicago, was found murdered in his office in Chicago on August 12.

Jacob C. Miller, formerly master mechanic of the Eastern district of the Chicago, Milwaukee & St. Paul, died suddenly on July 25, at his summer camp on Tomahawk Lake, Minocqua, Wis., from apoplexy, aged 61 years. He retired from active railway service February 1, 1910, since which time he had been living at Maywood, Ill.

William Henry Chambers, controller of the Florida East Coast, with office at St. Augustine, Fla., died recently in London, Eng. Mr. Chambers was born on September 25, 1852, at Dublin, Ireland, and began railway work in 1871, as a clerk in the freight department of the London & North-Western, and afterwards was assistant ticket agent at Dublin of the same road. Previous to 1887, he was claim clerk of the Savannah, Florida & Western, now a part of the Atlantic Coast Line, at Jacksonville, Fla. He was subsequently, for about a year, auditor of the St. Augustine & Palatka, now a part of the Florida East Coast, and from 1888, to 1892, was chief clerk and cashier of the Jacksonville, St. Augustine & Halifax River. He was then to January, 1901, auditor, and since that time was controller of the same road and its successor, the Florida East Coast.

D. M. Philbin, formerly general superintendent of the Lake district of the Great Northern and president of the Lake Superior Terminal & Transfer Railway, died in Duluth, Minn., August 6, aged 57 years. Mr. Philbin had been in railway service since 1874. From 1890 to 1893 he was superintendent of the Duluth, South Shore & Atlantic and the following three years was general manager of the Duluth, Missabe & Northern. He was then general superintendent of the Duluth & Winnipeg until June, 1898, when he became second vice-president of the Eastern Railway of Minnesota, of which road he also was superintendent from June, 1898, to April, 1903. On the latter date he was appointed assistant general superintendent of the Great Northern, and in 1906 he became general superintendent of the Lake district, which position he resigned December 31, 1913, on account of ill health.

James Thomas Byrne, until recently vice-president and superintendent of the Texas & Gulf, with office at Longview, Tex., died on August 7, at Temple, Tex. He was born on February 26, 1865, and received a common school education. He began railway work on August 1, 1880, as an axman on an engineering corps of the Chicago & North Western. He was then consecutively laborer, section foreman, and steel gang foreman on the same road, and brakeman, fireman, conductor and telegraph operator on the Missouri Pacific and the St. Louis, Iron Mountain & Southern. He then served as telegraph operator on various roads until his appointment in November, 1887, as trainmaster's clerk on the Gulf, Colorado & Santa Fe. He was then consecutively train despatcher, chief train despatcher, trainmaster and assistant trainmaster on the same road, until August, 1908, when he was elected vice-president and superintendent of the Texas & Gulf.

Equipment and Supplies

LOCOMOTIVE BUILDING

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS is reported in the market for a number of switching locomotives in addition to the five Pacific type locomotives noted in the *Railway Age Gazette* of August 7.

THE SOUTH DAKOTA CENTRAL has ordered two Consolidation locomotives from the American Locomotive Company. These locomotives will have 20 by 24 in. cylinders, 51 in. driving wheels, a total weight in working order of 138,000 lb., and a steam pressure of 180 lb.

THE CHICAGO, MILWAUKEE & ST. PAUL has ordered 20 superheater Mikado type freight locomotives from the American Locomotive Company. These locomotives will have 26 by 30 in. cylinders, 63 in. driving wheels, a total weight in working order of 275,000 lb., and a steam pressure of 185 lb.

THE CHICAGO JUNCTION has ordered two superheater six-wheel switching locomotives from the American Locomotive Company. These locomotives will have 20 by 26 in. cylinders, 51 in. driving wheels, a total weight in working order of 149,000 lb., and a steam pressure of 180 lb. The company also has an option on three additional locomotives.

CAR BUILDING

THE SOUTHERN PACIFIC has suspended indefinitely its inquiry for cars noted in a recent issue of the *Railway Age Gazette*.

THE NORTHWESTERN PACIFIC is in the market for 11 coaches and 3 mail and express, 4 baggage, 3 smoking and 4 chair cars.

THE PENNSYLVANIA RAILROAD is reported to have ordered 60 gondola cars from its Altoona shops for the Cumberland Valley. This item has not been confirmed.

IRON AND STEEL

THE SAN DIEGO & ARIZONA has ordered 1,200 tons of material for a viaduct from the Llewellyn Iron Works, San Francisco.

THE PADUCAH & ILLINOIS has ordered 18,000 tons of steel from the American Bridge Company, for its new bridge at Metropolis, Ill.

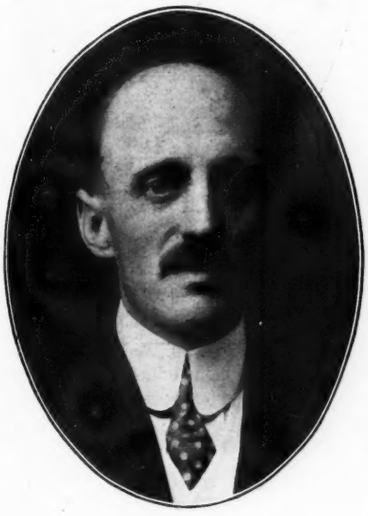
RAILWAY EXTENSION IN ASIATIC TURKEY.—The Bagdad Railway Company is a German syndicate which holds the concession for the construction of a railway from Konieh across Turkey in Asia to the Persian Gulf, a distance of 1,250 miles. The Bagdad Railway, which it is constructing, is now nearly completed except for a gap in the section crossing the Taurus mountains. It will undoubtedly be in full operation within two years. The concession is very liberal. It provides for a 99-year lease; a division of the line into 12 sections; the payment to the company of an annuity of 11,000 francs per kilometer to provide for interest on and redemption of the bonds issued for construction and 4,500 francs for operation when the line is completed. The capitalized value for each of the 12 sections as originally defined was to 54,000,000 francs, and Turkish 4 per cent. bonds were to be issued to the company before it had started work on any given section. These bonds, although not worth their nominal value, have nevertheless yielded enough to enable the company not only to meet its expenses, but also to make a fair profit. The company has also received very extensive rights in addition to those named above. It has, for instance, the power to construct a whole network of railways, including branches to Aleppo and Urfah, from Bagdad to Khanakin on the Persian frontier, to Marash, to Aintab, to Biredjik, to Mardin, to Arbil, from El Badieh to Hit and finally all the lines connecting the principal railway with the Mediterranean, limited only in space on the north by Mersina and on the south by Tripoli-in-Syria.

Supply Trade News

J. M. Hopkins, president of the Camel Company, Chicago, has accepted appointment as an executive member of the Railway Business Association.

Virgil G. Bogue, civil and consulting engineer, 15 William street, New York, has completed his engineering undertakings in the west, and announces that his office remains as heretofore at the above address.

W. H. Cadwallader, whose appointment to the position of general manager of the Union Switch & Signal Company has been announced in these columns, was born at Pittsburgh, Pa., in 1876. When he was three years old, however, his parents moved to the suburb of Wilkinsburg, which has been his home ever since. Mr. Cadwallader entered the service of the Union Switch & Signal Company as a blue-printer in 1891. In February, 1892, he was made a messenger in the office of the superintendent of works and later became a clerk in that office and in the general manager's office. In 1901, when the specification department was created, he was placed in charge of it. Later he was placed in charge of the estimating department, and in 1912 was made assistant general manager, which is the position he leaves to assume his new duties as general manager as above noted.



W. H. Cadwallader

J. S. Hobson, whose appointment as acting general sales manager of the Union Switch & Signal Company has been announced in these columns, entered railway service in 1884 as a railway apprentice in the shops of the Great Southern & Western Railway of Ireland. He came to this country in 1889 and served as locomotive machinist, draftsman and signal inspector, respectively, on the Chicago, Burlington & Quincy. In January, 1892, he became construction foreman for the Union Switch & Signal Company in the Chicago district, and in 1895 was appointed supervisor of electric signals for the Michigan Central at Detroit. In October, 1897, he was appointed to the new position of signal engineer of the Atchison, Topeka & Santa Fe, and remained in that position until he re-entered the service of the Union Switch & Signal Company in January, 1901, as assistant engineer. He later became assistant general manager and Western manager, and leaves the latter position to take up his new duties as acting general sales manager.

J. S. Hobson

Charles Eugene Denney, whose appointment to the position of assistant general sales manager of the Union Switch & Signal Company, has been announced in these columns, returns to the company after an absence of nine years, during which time he has been engaged in railway service. Mr. Denney was born October 18, 1879, at Washington, D. C. He attended Pennsylvania State College from 1896 to 1899, and in October of the latter year entered the service of the Union Switch and Signal Company. He remained with the company until May 15, 1905, when he left to become assistant signal engineer on the Lake Shore & Michigan Southern. On June 1, 1902, he became signal engineer of the same road, and retained that position until in October, 1913, he was appointed special engineer on the staff of the vice-president of the New York Central Lines West, with headquarters at Chicago. For a time beginning June 1, 1912, Mr. Denney was also signal engineer of the Lake Erie & Western.

C. E. Denney

The Railway Utility Company, Chicago, Ill., has recently received orders for utility ventilators to be used on cars for the following companies: Union Pacific, 107 cars; Missouri Pacific, 85 cars; New Orleans Railways Company, 50 cars, and the Chicago Surface Lines, 228 cars.

On the 21 Mikado type locomotives recently ordered from the Lima Locomotive Corporation by the Southern Pacific, vanadium steel has been specified for the frames, driving axles, main and side rods, piston rods, and main crank pins. All the forgings will be heat treated to give physical properties in conformity with the specifications recommended at the recent convention of the Master Mechanics' Association, by the committee on the Use of Special Alloy and Heat-Treated Steels in Locomotive Construction. The driving axles will be hollow bored.

TRADE PUBLICATIONS

Oil Engines.—The Chicago Pneumatic Tool Company, Chicago, has issued Bulletin No. 34 W., dated July, 1914, descriptive of Class A-O Giant fuel oil engines.

Portable Cranes.—The Canton Foundry & Machine Company, Canton, Ohio, has issued a catalogue descriptive of its portable floor cranes and hoists. The catalogue contains a number of views of the various hoists and shows wherein they are specifically adapted for the work for which they are intended.

Ball Bearings.—The Hess-Bright Manufacturing Company, Philadelphia, Pa., has issued a 28-page booklet aiming to show the advantages that its ball bearings have over the product of other manufacturers. The booklet contains a number of views of the ball bearings themselves and of machines in which they are used.

Steel Pipe.—Bulletin No. 10-C, recently issued by the National Tube Company, Pittsburgh, Pa., contains a paper entitled "The Relative Corrosion of Iron and Steel Pipe as Found in Service," written by William H. Walker, professor at the Massachusetts Institute of Technology, after an exhaustive investigation into the relative life of service pipes which had been in continuous service for a considerable number of years. Mr. Walker arrived at the conclusion, that "These results again demonstrate that, taken on the average, there is no difference in the corrosion of iron and steel pipe." The booklet also contains three other articles on the subject of corrosion, by F. N. Speller, metallurgical engineer of the National Tube Company.

Railway Construction

Alabama Great Southern.—An officer writes that contracts for the construction of 21.8 miles of double track have just been let to M. M. Elkan, Macon, Ga., as follows: Meridian, Miss., to Russell, 6.3 miles; York to Toomsuba, 15.5; the work to be carried out will consist of the construction of parallel track on present grade. The line to be double tracked is used by trains of both the Alabama Great Southern and the Southern Railway.

Alabama, Tennessee & Northern.—According to press reports this company is planning to build a 25-mile extension north from Reform, Ala., to connect with the St. Louis & San Francisco and the Illinois Central.

Canadian Northern.—A contract is reported let to A. L. McKay, Estevan, Sask., for grading work on a branch from Bienfait west to Estevan.

The Sturgeon River sub-division of the Western division has been extended from Edam, Sask., west to Turtleford, 17.4 miles.

The general location plans of the Canadian Northern branch from mileage 222 on the main line from Victoria to Duncan Bay, Sayword district on Vancouver Island, 8.2 miles, have been approved by the minister of railways for British Columbia.

Fairmount & Veblen.—An officer writes that work is now under way grading a section of 10 miles on the extension from Veblen, S. Dak., southwest to Webster 40 miles. The contract for this work was let last May to H. A. Whittier, Northfield, Minn. (May 8, p. 1055.)

Fort Worth-Denton Interurban.—An officer writes that the Stone & Webster Management Association, Boston, Mass., is working out the engineering details and preparing plans for the proposed interurban line which it will build and operate from Fort Worth, Tex., north to Denton, about 35 miles. A committee of citizens in accordance with an arrangement with the company is proceeding to obtain the necessary rights of way and franchises. (July 17, p. 148.)

Janesville & Madison Traction.—An officer writes that a grading contract has been given to M. M. Doran, Madison, Wis., for work on a section of the line, and contracts for track laying and bridge work including a 550-ft. steel bridge, also some trestles, will be let early in 1915. The plans call for building from Janesville, Wis., north via Indian Ford, Edgerton, Albion, Stoughton, along the shore of Lake Kegonsa, MacFarland, Edwards Park on Lake Waubesa, and along Lake Monona drive to Fair Oaks, thence to Madison. Most of the right of way is along public highways, and the company proposes to use gas-electric cars to operate this line. (July 31, p. 227.)

Louisville & Nashville.—The Lewisburg and Northern division has been opened for business from Brentwood, Tenn., south to North Athens, Ala., 93 miles.

New York Subways.—The New York Public Service Commission, First district, will ask for bids on September 11 for the construction of Routes Nos. 43 and 26, the diagonal station at Forty-second street connecting the Lexington avenue subway with the existing subway at the Grand Central station. This contract extends from points in Park avenue near Thirty-eighth and Forty-first streets northerly to the north line of Forty-second street. Also, on a lower level easterly under Forty-second street to about 100 ft. east of Lexington avenue to a connection with the Steinway tunnel. The construction of the line from Forty-second street under the property of the New York Central will be carried on under an agreement with that company.

Paducah & Illinois.—This company has awarded a contract for the grading on its line from a point opposite Metropolis, Ill., to Paducah, a distance of 13 miles, to Morris, Shepard & Dougherty, St. Paul, Minn. The total yardage is estimated as 1,500,000 cu. yd.

St. Andrews Bay Railway & Terminal Company.—A contract has been given to J. M. Willis, St. Andrews, Fla., for

building four miles of railroad for this company. The contractor wants to sublet several thousand cubic yards of grading. E. L. Woods, St. Andrews, is chief engineer of the railroad.

SUTHERLIN, COOS BAY & EASTERN.—This company, which was organized early this year, has been incorporated in Oregon with a $500,000 capital, and headquarters at Sutherlin, Ore. The plans call for building a line from Sutherlin east about 27 miles to a tract of timber at the head of Calapooya creek and eventually an extension further east, also to build west from Sutherlin to Coos Bay. George H. Glynn, A. Stark and Charles E. Lemon, all of Sutherlin, are incorporators. (June 19, p. 1565.)

SUWANEE RIVER & WHITE SPRINGS.—An officer writes regarding the report that financial arrangements have been made to build a line from Live Oak, Fla., east to White Springs, that a company is now at work on the line, which is to have a total length of 20 miles. Track has already been laid on five miles, and bids are wanted for building a steel bridge. J. B. Barton, president, Live Oak, Fla.

RAILWAY STRUCTURES

ALBUQUERQUE, N. M.—The Atchison, Topeka & Santa Fe has awarded a contract for the building of a new reinforced concrete engine house at Albuquerque, to Henry Bennett & Sons, Topeka, Kan. The estimated cost is $100,000. Plans are also being made for additional improvements at this point.

EAST CHATTANOOGA, TENN.—A contract has been given by the Southern Railway to D. F. Brandon, Chattanooga, Tenn., for building a combined freight and passenger station at East Chattanooga, to replace the building destroyed by fire on July 15. The new building will be of frame construction with tin shingle roof. It will have separate white and colored waiting rooms and office and freight room.

HARTFORD, CONN.—The New York, New Haven & Hartford will ask for bids in about two weeks for rebuilding the passenger station at Hartford, to repair the damage caused by fire.

JAMAICA, N. Y.—The New York Public Service Commission First district has ordered the Long Island Railroad to build a new passenger station on the southerly side of South street at Jamaica, on the Old Southern division of the road. The new station is to be ready for use by November 1 next.

LA GRANGE, GA.—The Macon & Birmingham will at once let a contract, it is said, for building a new passenger station at La Grange, to replace the old structure which was recently destroyed by fire.

NORTH PHILADELPHIA, PA.—An officer of the Pennsylvania Railroad writes that the contract for the improvements at the North Philadelphia station was let on August 6, to the Keystone State Construction Company, Philadelphia. The work includes remodeling the basement and train floors of the present station so that the basement floor, which is on a level with the new passenger tunnel built under the tracks and leading to the island platforms, will become the main floor of the station where the new ticket office, baggage room, newsstand, telegraph and telephone facilities and the lobby will be located. The upper floor, which is the present train floor, will consist of a waiting room, toilet rooms and lunch room. The street approaches to the station will be regraded to the lower level instead of to the present train floor. Work on a new boiler house is about finished, so that the boilers and the machinery can be removed from the present station. The company expects that work on the improvements will be completed this year. (August 7, p. 269.)

POCATELLO, IDAHO.—The Oregon Short Line has awarded a contract for the building of a new passenger station at Pocatello, Idaho, to Lynch-Cannon Engineering Company of Salt Lake. The cost is estimated at $150,000.

RICHMOND, VA.—The Southern Railway has given contracts to the John T. Wilson Company, Richmond, Va., for building the new freight house at Richmond, also for building the combined freight and passenger station at South Richmond. (June 26, p. 1607.)

SPARTANBURG, S. C.—An officer of the Piedmont & Northern writes that a contract has been given to J. A. Jones, Charlotte, N. C., to build a brick warehouse 100 ft. by 140 ft., and this work is now under way. The cost of the new structure, which is to have three stories, will be $40,000. (July 31, p. 228.)

Railway Financial News

COLUSA & LAKE.—This company has discontinued passenger service and will run freight trains only. At a recent meeting of the directors the reports showed the passenger and mail service was being operated at a loss, while the freight business was profitable. The state railroad commission was notified and granted permission to discontinue the service. The road connects with the Southern Pacific at Colusa Junction about 50 miles north of Sacramento, Cal. It will maintain an irregular freight service between Colusa and Sites to take care of grain shipments from the foothill section and merchandise shipments for Colusa and Sites.

DENVER & RIO GRANDE.—See Western Pacific.

INTERNATIONAL & GREAT NORTHERN.—On the application of the Central Trust Company of New York, the United States District Court at Houston, Texas, has appointed James A. Baker, of Houston, Texas, and Cecil Lyon, of Sherman, Texas, receivers. This action was taken by a committee of noteholders in order to forestall any possibility of similar action in the state courts inasmuch as it was desired to keep the property under supervision of the Federal Court. The notes on which the action was taken amount to $11,000,000, secured by an issue of $13,000,000 first refunding mortgage bonds held by the Central Trust Company.

A statement by Thomas J. Freeman, president of the road, said it was impossible to meet either interest or principal of the notes due August 1, and as there was no market for the bonds a default resulted. The road operates about 1,100 miles of line, all in Texas.

Alexander J. Hemphill, president of the Guaranty Trust Company, New York, and chairman of a committee of bankers which was working for an extension of the notes, to be made conditional on an option for taking control of the property away from the Goulds, is quoted as saying that the plan to extend the notes will not be abandoned. A new agreement will be prepared calling for deposits. Following a meeting of the Hemphill committee a statement was issued to the effect that, in view of the receivership, the committee ought to be clothed with such additional powers as will enable it to act for the noteholders in any situation that may arise. The committee, representing a majority in amount of the notes, has constituted itself a protective committee, with the broader powers which the changed conditions have made necessary. Holders of the notes are requested to deposit their notes at once with the Guaranty Trust Company.

The $11,000,000 notes now defaulted were sold to bankers in 1911 as part of a reorganization plan for raising working capital to take the road out of receivership. The property was sold under foreclosure June 13, 1911, the newly formed company taking possession three months later.

LAKE SHORE & MICHIGAN SOUTHERN.—See New York Central.

MISSOURI PACIFIC.—The attempt of the management to get funds in Europe having failed the road will begin a policy of retrenchment. President Bush has just returned from a trip to Europe. Even though war had not been declared, he said there would have been slight hope of floating American railway securities in Europe. Accordingly, arrangements for the expenditure next year of $4,000,000 on improvements have been dropped.

See Western Pacific and also International & Great Northern.

NEW YORK CENTRAL.—The minority stockholders of the Lake Shore & Michigan Southern who, unsuccessfully, brought suit in the Federal court in Michigan to prevent a consolidation of the Lake Shore & Michigan Southern with the New York Central & Hudson River last week entered suit in the Federal District Court in New York. An equity suit was filed through the law firm of Cadwalader, Wickersham & Taft, to enjoin the merger. It is alleged that since the Central secured control of the Lake Shore in 1898, the management has juggled its books so as to keep the minority stockholders in ignorance of the actual earnings. Since 1897, it is alleged, $187,000,000 of the earn-

ings of the road which should have gone to the payment of dividends has instead been devoted to expenditures which ought to have been charged to capital account. The plaintiffs in the suit are Annie L. DeKoven and Cecil Barnes, of Chicago, as trustees under the will of John DeKoven, who owned 500 shares of Lake Shore stock. Other minority stockholders join in the suit with them. They say that the property of their road is more valuable than that of the Central and that the consolidation was undertaken to aid the Central in its costly undertakings in connection with the construction of the new terminal in New York.

New York, New Haven & Hartford.—The directors of this company have come to an agreement with the United States Department of Justice by which the government will withdraw its suit for the dissolution of the company; the principal feature of which appears to be a clause intended to shorten the time to be allowed for the company to make some disposition of its Boston & Maine shares. Next January, when the Massachusetts legislature meets, the directors will have an opportunity to try to secure a modification of the law of that state which restricts the market for these shares.

The directors ratified the new agreement August 11. Under its terms the road passes its title to the Boston & Maine to trustees, who will endeavor to sell the same within one year, and the department agrees to drop its suit. A statement issued by President Hustis says:

"In pursuance of the hope expressed in the statement of July 22 that a way might still be found to accomplish the peaceful dissolution of the properties, an agreement has been reached, which is substantially a renewal of the original agreement between the attorney general and the company in all respects except as to the Boston & Maine stock, and is in accordance with the vote of the stockholders at New Haven, April 21, authorizing a settlement with the government.

"The members of the board highly appreciated the courtesy of the attorney general and his co-operation in their endeavor to solve the problem without inflicting unnecessary loss upon the shareholders and to effect a rehabilitation of the property in the interest of the public."

By the terms of the agreement a stipulation will be filed in the United States Court in New York City, in which the New Haven will agree to transfer its title to its Boston & Maine stock to a board of trustees, headed by former Chief Justice Marcus P. Knowlton, of the Supreme Judicial Court of Massachusetts, these trustees to have all the power of owners of the stock in disposing of the same within one year, it being understood that on the presentation of reasonable ground for delay in selling, further time may be granted by the court.

It is agreed that any questions of law involved in the sale of the Boston & Maine stock shall be submitted to the courts. This leaves the way open for the New Haven to attack the constitutionality of the law, by which the state of Massachusetts retains a perpetual option on the Boston & Maine, in the event that the legislature at its next session, in January, does not satisfactorily amend the law.

The stocks of the Connecticut trolley companies are to be transferred to a board of trustees, headed by Judge Walter C. Noyes, of New London, which is to dispose of the roads before July 1, 1919.

The Rhode Island trolley roads are to be transferred to a board headed by Rathbon Gardner, of Providence, with instructions to sell the same by July 1, 1919.

The minority stock of the Eastern Steamship Company is to be disposed of before July 1, 1917.

The Berkshire trolley lines are to be sold within five years from July 1, 1914.

The question of retaining the Sound Steamship lines is to be decided by the Interstate Commerce Commission, in accordance with the provisions of the Panama Canal act.

It is further understood, but not made a part of the stipulation, that the Department of Justice will view with approval any act of the legislature of Massachusetts that will tend to make easier the sale of the Boston & Maine, which, by the terms of the law enacted at the last session of that legislature, is made subject to a perpetual option to the state of Massachusetts.

Howard Elliott, who is now president, as well as chairman of the board, is expected to be at the New York office of the company on August 17. It is said that Mr. Elliott has greatly profited by his rest in the woods. He had worked ten months without as much as a Sunday off.

Credit for reaching an amicable settlement appears to be given to President Wilson, who, though he authorized the filing of the dissolution suit, seems to have taken effective action to check the litigation.

Particular prominence is given in the press despatches, especially in the yellow journals, to the fact that the present agreement will not prevent the attorney-general from prosecuting individual directors for any criminal acts that they may have committed; and one paper says proceedings of this kind will be begun in the courts in two weeks; but there is no reliable evidence that anything is being done. No call has yet been issued for a special grand jury to consider the case, and the law requires ten days' notice to jurymen.

President Hustis, in a second statement, said:

"An erroneous impression seems to have gone forth that the company has yielded in its settlement concerning the time limit.

"The agreement between the attorney-general and the representatives of this company of March 21, which was ratified by the stockholders, provided that the company should have two and one-half years from July 1, 1914, to complete the sale, but, for good cause shown, the time may be extended by the United States District Court.

"The arrangement just agreed to provides that the company shall have until January 1, 1917, to dispose of the stock, unless, for good cause, the court grants additional time.

"But if by July 1, 1915, the New Haven company and the Massachusetts legislature agree on terms on which this control shall be parted with, satisfactory to the United States and approved by the court, such plan shall be adopted by order of the court."

Oklahoma Central Railroad Company.—This is the name of the new corporation which has been chartered in Oklahoma to take over the Oklahoma Central Railway, sold, on July 31, by order of the court. The new company has an office at Muskogee, and the incorporators are H. A. Gibson, R. D. Long, William M. Cutlip and J. A. Lathum. Muskogee is 100 miles from the nearest point on the Oklahoma Central, and is 50 miles from Tulsa, the nearest point on the Atchison, Topeka & Santa Fe.

Pennsylvania.—The lease of the Northern Central went into effect August 1, and the Pennsylvania Railroad Company now operates all lines formerly operated by the Northern Central Railway Company. The Erie division of the Pennsylvania Railroad and the Northern Central Railway have been consolidated under the name of Central division—Pennsylvania Railroad Company. Until further notice the subdivisions and branch roads included under the Erie division of the Pennsylvania Railroad and the Northern Central Railway will continue to be operated as subdivisions and branch roads of the new Central division. The name of the former Central division of the Philadelphia, Baltimore & Washington has been changed to Media division. All of the lines embraced in the new Central division were already operated under a single general superintendent.

Western Pacific.—The directors of the Denver & Rio Grande have voted to pay the semi-annual interest of 2½ per cent. on the first mortgage bonds of the Western Pacific, notwithstanding that the earnings of the road have not been sufficient to meet the entire amount. The deficit will be made up by the Denver & Rio Grande. The interest will fall due September 1. The directors add: "If the Denver & Rio Grande is to continue its support of the Western Pacific some plan of readjustment of Western Pacific finances and the relation of Denver & Rio Grande thereto must be devised which will be acceptable to the holders of the Western Pacific first mortgage bonds, and a call for the deposit of these bonds will be put forth at an early date by a committee of responsible bankers looking to the adoption of a plan which will at once lighten the burden which the Denver & Rio Grande is now carrying, to place the financial structure of the system upon a basis of recognized solvency and credit, and, as far as may be practicable, provide means for the development of the Western Pacific.

"The payment of interest, which will fall due on September 1, 1914, has been decided upon in order to give time to prepare, submit and consider the proposed plan. Money is already assured for the payment of the interest."